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Writers ging 'Retread' Image

DP Close-Up

By Lois Paul
CW Staff

Technical writing is no longer an afterthought career or the place for a near-retirement technician to end his working days. Up until 10 years ago, you typically found a "retread engineer" managing a publications group; today, with the increasing number of undergraduate and people into the field."

graduate specialties in technical writing, the situation has changed, observed Ken Buechs, manager of technical publications at Honeywell, Inc. "The essential ingredient," according to Buechs, "is that we have gotten quality

Joan Houlihan, a Boston-based free-lance technical writer, said her feeling from working with older technical writers was that technical writing was a sort of Twilight Zone peopled by engi-

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Third-Party Leases Menaced by Economy, Leasing Execs Warn

By Jake Kirchner
CW Washington Bureau

WHITE SULPHUR SPRINGS, W. Va. — Users negotiating hardware leases through third parties may soon find themselves unable to complete the transactions because the poor economy has dried up the necessary investment capital, executives of computer leasing firms warned last week.

In an interview with *Computerworld*, four chief executives of Computer Dealers and Lessors Association firms, meeting here last week, said end users no longer have the luxury of "jerking around" competing lessors in the hope of getting the best deal on hardware acquisitions. "For end users, time is of the essence for completing transactions," said Edward Cherney, president of CMI Corp. in Troy, Mich.

Cherney explained that the large financial institutions that have historically provided much of the money for third-party computer leases in order to gain tax shelters to offset earnings are not nearly so active in this marketplace today. Those sources of funds "are not players anymore," agreed Tom Martin, president of Computer Financial, Inc. in Hackensack, N.J.

Harry E. Goetzmann Jr., president of Continental Information Systems, Inc. in Syracuse, N.Y., speculated that because the tax shelters have to be arranged by the end of the year, time is running out to close many equipment leasing deals. In practice, he added, those transactions not completed by mid-November may fall through.

Another chief executive officer, George H. Heilborn of IPS Computer

(Continued on Page 5)

IBM Stalling on Enhancements?

'Info/Management' Snags Ruffling Users

By Jeffry Beeler
CW West Coast Bureau

SAN MATEO, Calif. — Several of IBM's largest West Coast users are voicing deep dissatisfaction and frustration with their continued inability to obtain some much-needed enhancements to the vendor's Information/Management problem- and configuration-monitoring system.

For months, the customers have been urging IBM — both through users group meetings and formal written requests — to enhance the Info/Management program product with a mass updating capability and an archiving/batch interface facility.

The users have received no firm assurances from IBM that the requested features will be added to the system any time soon, according to independent DP consultant Ann Anderson.

Anderson's experiences with the software, which users refer to as "Info/Management," stem partly from her consulting work with the San Francisco-based American President Lines Ltd., one of the IBM product's largest West Coast users. She also helped to organize and serves as the official spokeswoman for a local Info/Management users group, where she has had a chance to familiarize herself with many of her fellow members' systems-related problems.

First released about two years ago, Info/Management forms part of

(Continued on Page 4)

Inattention to User Needs Cited for DP's Power Slide

Coverage of Data Training '82 continues on Pages 10 through 14.

By Marguerite Zientara
CW Staff

HOUSTON — The unresponsiveness of DP departments to users' needs in the '70s has resulted in today's erosion of DPers' power within organizations.

Therefore, DP must find new sources of power in such areas as office automation and production-oriented functions, according to Jaime Jusidman, president of the North American Division of Jusidman & Associates, Laguna Niguel, Calif.

"We have to move to a wider role, to large thinking as opposed to very focused thinking," Jusidman said at a session entitled "The Changing Power Structure of DP" at Data Training '82, sponsored by *Data Training* newspaper here last week. Jusidman described a model he developed for recapturing the "credo," or pride of product, that existed in DP in the early '60s.

First, DP must recognize its capability — what resources it has available to make a contribution, Jusidman said. The next step of the process — a key one — is discovery, "the ability of a system to find out

(Continued on Page 10)

DPers Forced to Become Educators To Turn Execs Into Savvy Users

By Lois Paul
CW Staff

MILWAUKEE — You can lead your end users to "user-friendly" software tools, but you may not be able to make them use the tools effectively.

That is the dilemma faced by Peter Pustow, manager of data processing for Wehr Corp., a "miniconglomerate" that serves as a holding company for machinery equipment and environmental products firms. About five years ago, a directive came down from Wehr's president and chief executive officer calling for facilities that allowed users to obtain accurate, timely information without having to go through the DP department.

Part of the response to that directive was the installation last March of Cincom Systems, Inc.'s Total Information System software, which includes TIS Intelligent Query, a query language that supports batch and on-line processing and a more powerful report writer. The software is running on an IBM 4341 Model Group 2 under OS/VS1 with Vtam.

(Continued on Page 7)

D.H. Chenault/NYT Pictures

How He Did It

Burroughs Corp.'s image as well as its bottom line have perked up in the two years since W. Michael Blumenthal became its chairman. In an exclusive *Computerworld* interview (Page 6), Blumenthal tells how he did it.

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AT&T, Justice Go to High Court

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — AT&T and the Justice Department last week sought a quick final verdict from the U.S. Supreme Court on their recently negotiated antitrust settlement.

Although the agreement has been accepted by U.S. District Court Judge Harold Greene, who presided over the U.S. vs. AT&T antitrust trial, 20 petitions seeking review by the U.S. Court of Appeals have been filed. However, federal legal procedure rules allow the settlement to be referred directly to the Supreme Court if Greene certifies that it involves novel issues.

That is what the Justice Department and AT&T asked Greene to do last week. Both are concerned that if the decision goes to the appeals court first, it will almost certainly be referred to the high court for final action, and the time required to make all this happen will adversely impact the settlement.

Most of the appellants are states and state regulatory commissions, but they also include the North American Telephone Association, the major trade association of independent telephone and private branch exchange manufacturers, and Tandy Corp.

The state of Maryland, which filed the first appeal, stated the theme underlying all other appeals: The settlement "disregards a fundamental premise of state utility regulation . . . At stake is the . . . ability of state public utility commissions to act, in a manner chosen by their state legislatures, to ensure that their citizens are provided adequate, efficient and economical telephone service."

Data Comm Briefs

Telephone Firm Claims Right to Operate DTS

WASHINGTON, D.C. — The Chesapeake and Potomac Telephone Co. is not barred by the AT&T antitrust settlement from operating digital termination systems (DTS), the firm told the Federal Communications Commission (FCC) this month.

Chesapeake and Potomac's statement was the latest development in a widening controversy over the rights of telephone companies and/or their subsidiaries to operate microwave-based, local-distribution DTS networks. The DTS networks are generally regarded as the solution allowing existing telephone-company-provided local loops to transmit data at the speeds and with the error performance required by today's computers and intelligent terminals.

The FCC set aside frequencies some time ago for DTS channels that overcome these drawbacks; nearly 40 vendors have now applied for licenses, including seven Bell operating companies. Nine applications have been approved by the commission so far, and the first DTS systems are expected to be in place by about this time next year.

However, the possibility that telephone companies may get into the DTS business could scare off investors and force at least some operators to retrench. The Bell operating companies' DTS applications are opposed by Warner Amex Cable Communications Co., Tymnet, Inc. and National Microwave Interconnect Co.

The latter two companies have received a green light from the FCC to begin building their systems; Warner Amex is awaiting commission approval.

An FCC spokesman said last week that the commission is unikely to begin considering the Bell operating company applications and the related objections until after Jan. 1.

USPS Review of Ecom Urged by Trade Groups

WASHINGTON, D.C. — Four trade associations have asked the governors of the U.S. Postal Service (USPS) to review operation of the controversial Electronic Computer-Originated Mail (Ecom) service.

The associations quoted from a recent report of the House Government Operations Committee to back up their charge that Ecom is being subsidized by other postal services, a practice explicitly prohibited by federal statute.

Another issue that the governors should address, the associations said, "is the USPS claim that Ecom is now a 'success.' Even if recent weekly volume is maintained, the first-year totals will fall short of projections by about 80%."

The governors were also reminded that in their August 1980 authorization of the new service, they atated that Ecom messages must be transmitted by a communications carrier to serving post offices in the addressee's locality. The associations charge that "contrary to this clear direction, the Postal Service has, since Ecom's inception, been accepting messages at the originating area as well."

The four trade groups that requested the Ecom review were the Association of Data Processing Service Organizations, Inc., representing 550 computer services firms; the Computer and Communications Industry Association, representing 71 computer equipment and systems vendors; the Ad Hoc Committee for Competitive Telecommunications, an association of specialized communications carriers; and the Mail Advertising Services Association International, composed of 450 mailing services firms.

This Week

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VOX POPULI

Who got 75% of the vote:

(a) Democrats;

(b) Republicans;

(c) SyncSorts.

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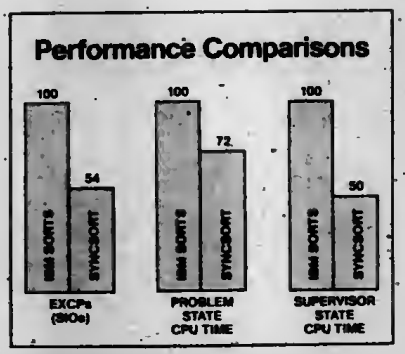

If you choose (c) as the correct answer, you're right. SyncSort did better in its election than either of the two Great Political Parties did in theirs.

Our election was, of course, IDC's Sixth Annual Survey of sort programs used by OS and OS/VS data processors in the U.S. In this year's election, 75% of those polled said that they now sort with SyncSort!

The following figures will show the magnitude of this year's landslide, as well as the steady growth of SyncSort's power as a vote-getter in recent years:

PERCENT OF USERS IN THE U.S.

Sort Used	1982	1980	1978
Syncsort	75%	69%	54%
IBM	19%	25%	42%
Other	6%	6%	4%

We also received another signal honor that warmed the cockles of our hearts. Datapro's 1982 "User Ratings of Proprietary Software" awarded top honors to only two programs this year. One of those two was SyncSort!

To those who cast their ballots for SyncSort, our warm thanks. And for those who didn't, a gentle reminder of why SyncSort has become "The Peoples' Sorting Choice":

(1) SYNCSORT LOWERS SORTING TAXES: When our sort first ran for office back in 1972, sorting was a scandal. It was wasteful, inefficient, and downright corrupt.

In one decade, we changed all that. Many of the technological breakthroughs we pioneered are now patented. All three versions of SyncSort — OS, DOS and CMS — require far fewer computer resources than any of the sort programs that run on the Great Hardware Party ticket. See the charts below.

(2) SYNCSORT RAISES PROGRAMMER PRODUCTIVITY: Our programs always get the programmer vote. One reason that Syncsort is so popular with the people in the trenches is that it takes a burden off their backs. Using SyncSort's battery of advanced features, for example, it is often possible to reduce the time required for simple reports from five programmer days to one.

(3) SYNCSORT ANSWERS THE TELEPHONE: We serve our constituency better than any other sortmaker. Our Technical Service people are experts in sorting. They play a key role in the shaping of new releases and the solving of user problems. Over 85% of all requests for assistance are resolved within 24 hours.

So if you're not yet a member of the Grand Old Party of Sorting, give us a call. We'll send SyncSort around for a face-to-face debate with your present sort. That ought to prove again that "you can't beat something with nothing."

syncsort INC.

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'Info/Management' Ruffling Users

(Continued from Page 1)

IBM's Information/System, which runs under MVS and reportedly allows users to do first-level problem determination on-line. In essence, Info/Management provides companies with a data base that permits systems personnel to keep track of all unscheduled hardware, software and network outages that last longer than e specified period.

The product also records configuration changes and all interruptions of end-user computing services, the vendor reported. The contents of Info/Management's data base can then be used by DP personnel to produce system availability reports for senior corporate executives.

Although most users have responded to Info/Management enthusiastically, the system apparently suffers from at least one serious drawback: It lacks efficient archiving and mass updating facilities. Users who want to purge, modify or transfer large numbers of Info/Management records to an archival file either have to do so manually or develop their own programs to eccelerate the process, Anderson said.

Because both those options can prove tedious and time-consuming, many users — especially those with rapidly expanding Info/Management data bases — have simply let their problem and configuration change records eccumulate. Eventually, the data bases grow to the point where the product's response times begin to degrade seriously, and its disk storage requirements ere no longer acceptable, Anderson said.

Simplified Task

With the addition of erchiving and mass updeting facilities, the task of eliminating large numbers of outdeted records from the IBM problem-reporting system would be greatly simplified. Users would be able to chop their Info/Management data bases down to a manageable size end, in so doing, significantly improve the product's speed and efficiency, five of IBM's customers confirmed.

Until recently, several of IBM's largest West Coast users had been keeping their fingers crossed that the archiving and mass updating facilities would be included in Info/Management's next release, which is likely to be announced in about six months. But last September, during e West Coast Info/Management users group meeting here, the customers' hopes suffered e severe setback when IBM presented a list of some 25 proposed enhancements to the on-line problem reporting system.

At the top of the company's list of priorities were suggested improvements such as profile support, enhanced scrolling and graphics — features that IBM's very largest West Coast users consider relatively unimportant. Near the bottom of the list were items such as the archiving and mass-updating facilities, Anderson said.

The disclosure that archiving and mass updating have been assigned a much lower priority in IBM's Info/Management development plans merely confirmed several California companies' worst fears: that the two requested product features are unlikely to be included in the problem-reporting system's next release, as had been hoped.

Thus, for et least e few of Info/Management's largest West Coast customers, IBM's comments during the September users group meeting came as a bitter disappointment. "Heving e feature like graphics added to the system would certainly be a neat plus, but it's definitely a bell and whistle," Anderson said.

IBM Evasive

WHITE PLAINS, N.Y. — Does IBM really regard archiving and mass updating as relatively low-priority enhancements for its Information/Management problem reporting system?

Several of the industry giant's largest West Coast users said "yes," but IBM itself refused to answer directly.

"Our whole process of planning product requirements is something we consider proprietary," an IBM spokesman said last week, "so we can't get into e discussion" about whether archiving and mass updating have been assigned e high or low priority in IBM's list of proposed Info/Management program product enhancements.

Asked to explain why archiving and mass updating have yet to be added to the system when several of the company's largest users have requested the two enhancements repeatedly, the spokesman pointed to Info/Management's relative newness.

When the problem reporting system first appeared on the scene about two years ego, "the idea was to address the needs of e broad spectrum of users and then announce edditional features as we went along," the spokesman said. Although the archiving and mass updating features were omitted from Info/Management's original specifications, "we do work with users on an ongoing basis to figure out what they need and add enhancements when eppropriete."

Socal's 'Info/Management' Too Much of a Good Thing

By Jeffry Beeler
CW West Coast Bureau

SAN FRANCISCO — When Standard Oil Co. of California (Socal) first became a user of IBM's Information/Management system, it voiced satisfaction with the results. As e repository of some "very useful" information, including records of systems outages and configuration changes, the product soon "altered the way we do business," according to Socal analyst/programmer Durwin Wright.

But Socal may have liked the Info/Management software just e bit too much. As the months passed, the number of problem and configuration records in the system's data base began to grow st e substantially faster clip than either the user or IBM expected.

For e while, Info/Management took the unforeseen growth in stride. But when the number of records in the product's data base finally topped 4,000, Socal's computing center personnel began to notice a significant erosion in the system's performance. It took an increasingly long time to complete reports and search for specific data.

Since then, each increase in the size of Info/Management's data base has signaled e further deterioration in the product's performance. Today, Socal's problem- and configuration-management data base contains some 9,000 records and is continuing to grow by at least 1,000 items each month, Wright said.

Socal's experience with Info/Management is by no means unique. Unexpectedly rapid data base growth — end an accompanying degradation in systems efficiency — have also emerged as major problems at several other large IBM West Coast user organizations, including two of the U.S.' biggest banks.

The reason for the problem is simple: In its current release, the IBM system lacks e facility that would allow users to remove eging records quickly from a live problem management data base and transfer them instead to an erchival file. Also absent is e feature that would enable users to purge or update large numbers of related records in one feli swoop.

For Most Users

For most users, the ebsence of these archiving end mass-updating facilities thus far has resulted in few if any serious hardships, according to independent DP consultant Ann Anderson, who heads a West Coast Info/Management users group. The typical Info/Management data base holds only a few hundred or et most 2,000 problem- and configuration-management records and thus is still much too small to have developed any major growth-related performance ills.

But for a handful of very large users, the need for archiving end mass-updating facilities has already become urgent. Without the two proposed enhancements, such users would be hard-pressed to rid their overgrown data bases of unnecessary records and restore Info/Management to its original performance levels.

"Some of our [users group] members have already reached e criticel decision point" where prompt action has to be taken — either by IBM or the customers themselves — to trim the size of Info/Management's data bases, Anderson said. One of those users is Socal, which last June formally asked IBM to enhance Info/Management with archiving and mass-updating facilities, preferably in the product's next release. A similar request has also been drafted by Anderson's users group and is due to be mailed to the industry giant shortly, she said.

To date, IBM has yet to respond to the users' formal written requests with any concrete remedies or proposals. So Socal, unwilling and unable to wait any longer, has gone ahead and developed an archiving facility on its own, Wright said. The company has also borrowed e "homemade" batch-updating facility from B.F. Goodrich Co.

However, these "do-it-yourself" Info/Management enhancements are unsupported by IBM and may prove incompatible with the system's next release, according to e company spokesman.

Corrections

The announcement of IBM's 3800 Model 3 laser printer [CW, Nov. 8] incorrectly stated that the newly announced Model 3 is twice as fast as the older Model 1. IBM said the newer version provides twice the printing density as the Model 1 but produces documents at ebout the same speed.

In an article on software copyright and patent disputes [CW, Nov. 1], S&H Computer Systems, Inc. of Nashville, Tenn., was incorrectly identified as SNH Computer Systems.

Hitachi, NAS to Turn Over Allegedly Stolen Material

SAN FRANCISCO — Hitachi Ltd. and National Semiconductor Corp. and its National Advanced Systems unit heve agreed to turn over allegedly stolen material to IBM, according to documents filed in federal court here.

The defendants in IBM's trade secrets civil suit agreed to the stipulation in exchange for e temporary stay in the proceedings, according to the documents. The material to be turned over includes IBM manuals, workbooks and electronic items.

IBM filed the suit in September charging Hitachi, Netional Semiconductor and its subsidiary and 18 individuals with conspiracy, unfair competition, copyright infringement and racketeering.

The stipulation stated that further proceedings in the civil suit will be suspended until 20 days after resolution in district court of the Justice Department's criminal case pending against Hitachi and most of the others named in the civil suit. A trial is scheduled for April.

The stipulation with Netional Semiconductor and its subsidiary said IBM will be allowed to conduct discovery to find out how Netional Semiconductor gained possession of the secret material. The stipulation said the parties will try to settle the case after the investigation ends.

Ibis Takes a Shot at the IBM 3380/3880 Market

By Tom Henkel
CW Staff

DUARTE, Calif. — Ibis Systems, Inc. made its first run at the end-user, IBM-compatible disk drive business last week when it announced a line of disk drives and controllers targeted against IBM's 3380 and 3880 disk/controller combination.

Ibis' 5380 disk drives and 5880 controllers appear to compete on about the same price/performance level as IBM's top-of-the-line 3380. The Ibis drive, which comes in four models to accommodate various controller and spindle combinations, offers 2.52G bytes of storage with a data transfer rate of 3M byte/sec.

The Ibis drives use two modular head/disk assemblies, thin film disk technology and ferrite read/write heads. The units occupy about 20% less floor space than their IBM counterparts but, according to Ibis Executive Vice-President for Operations Richard Weir, the Ibis drives actually take up about 40% less space because the need for a side maintenance panel has been eliminated.

Each drive features four arms, or actuators, that allow direct access to 630M bytes of storage per actuator. The drives are available with either single or dual porting, Ibis said.

The 5380 drives were designed to operate with Ibis' 5880 controllers. It is possible to attach 5380s to IBM's 3880 controller, Weir said, although this would involve sacrificing one diagnostic port.

Up to 32 Ibis 5380 drives reportedly can be linked through a 5880 controller to provide a total storage capacity of 80G bytes. The 5880, which comes in two models, features two or four independent storage directors and two-, four- and eight-channel switch options are available.

When a 5380/5880 disk subsystem is attached to a data streaming channel, the standard transfer rate is 3M byte/sec.

The 5380 Model A4 connects to one 5880 controller and costs $94,450; the 5380 AA4 connects to two 5880 controllers with the second device controller acting as part of a dual porting and dynamic path selection. It costs $111,600.

The 5380 B4 disk drive connects to one 5380 Model A4 or another B4. A maximum of three drives can be attached in a string to a single port. The B4 costs $78,350.

The 5380 Model BB4 connects to one 5380 Model AA4 or another BB4. A maximum of three devices can be attached to a dual port. The Model BB4 costs $83,670.

The controllers are available in two models, the 5880-3 and the 5880-33. The 5880-3 provides a storage director unit made up of two storage directors. Each director attaches to one or two strings of 5380s with a maximium of 16 actuators per string and up to 32 actuators per director. The 5880-3 costs $75,760.

The 5880-33 has two dual storage director units, with each storage director accommodating one or two strings of 5380 disk drives. The unit costs $136,370.

First customer shipments of the 5380 and 5880, mainly in the Los Angeles area, are scheduled to begin in the second quarter of 1983. Nationwide volume shipments are scheduled for the third quarter of 1983.

Ibis is located at 1850 Evergreen Drive, Duarte, Calif. 91010.

Poor Economy Affecting Leases

(Continued from Page 1)

Marketing Corp. in Paramus, N.J., added, however, that the likely outcome is that "the deals [will] get done; they merely [will] become very expensive." Martin said of the current leasing situation: "It's never happened before ... It's going to catch users by surprise."

The situation is ironic because, in general, hardware leasing should be very attractive, particularly in light of recent tax law changes that effectively reduce the finance charges for computer leases. Michael Fleming of the American Association of Equipment Lessors told the CDLA meeting that increased competition in the leasing business will drive down lessors' profit margins, further fueling "a broader demand for leasing."

If that development is slowed by the present economic slump, the recession is also having a positive effect on corporate DP budgets, according to Goetzmann, who noted a heightened "degree of sophistication in mid- and upper-level management" on how to increase productivity while economizing.

Unlike the recession of 1974-1975, "we're finding many of our customers going to more equipment," Goetzmann said. He suggested that managers who appreciate the value of automation are finally reaching high-level executive positions.

On the subject of user sophistication, Goetzmann commented that DP managers are developing considerable skill at negotiating for the best deal in equipment procurements. One effect of this growing sophistication: It is getting harder for lessors to make deals with DP departments trying to stretch their resources in the face of an unfriendly economy.

"I have never worked so hard as I have this year for the amount of return I've gotten," Martin concluded.

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Blumenthal Tells How He's Changing Burroughs

When W. Michael Blumenthal took over the chairmanship of Burroughs Corp. in January 1981, one of his first tasks was to break the news of the company's poor financial condition and to disclose his plans for restructuring the firm.

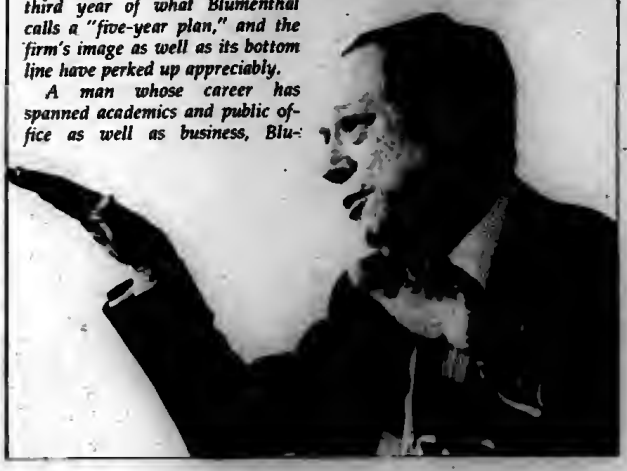
In the ensuing two years, Blumenthal has replaced most of the firm's top management, closed several factories and instituted stringent controls on finances, quality and service.

Burroughs is now entering the third year of what Blumenthal calls a "five-year plan," and the firm's image as well as its bottom line have perked up appreciably.

A man whose career has spanned academics and public office as well as business, Blumenthal joined Burroughs shortly after leaving his post as Secretary of the Treasury during the Carter administration.

Prior to this high-level government post, Blumenthal was chairman of Bendix Corp., where he worked from 1967 to 1977. An economist by training, he also spent several years in academia.

Blumenthal recently discussed Burroughs and the computer industry with CW Senior Editor Marcia Blumenthal (no relation).



Some industry observers were surprised when you took over at Burroughs Corp. because your background is not in the computer industry. What is your reaction to that observation?

Although I am not a technically trained person, I had worked in a technology-oriented business and worked with engineers and knew something about electronics.

I've run companies long enough so I've learned who to trust and how to develop basic themes for the company. I assembled a team of capable people from within and without the company and now I keep my eye on the main ball and delegate to them.

Shortly after you assumed the leadership at Burroughs, the poor financial picture of the firm surfaced. What did you find when you arrived at Burroughs?

I found a very fine company, an old company, which was good in products but not first class in quality, service or support.

The company lacked an infrastructure of administrative systems and procedures and a clear view about where to put its priorities or what products to emphasize and we had too many factories.

What has been done to improve that situation?

Looking at the company in 1980, I saw opportunities for better management, for example, achieving better sales with less inventory. Our asset management program was an obvious and quick way of improving the bottom line and this is working very well.

Other steps, like consolidating manufacturing facilities, take time and cost money, but this is beginning to pay off.

The third step is investing up front in logistic systems so you can bring your products to market efficiently and on time and ensure they have the appropriate quality and maintenance. This enhances your reputation for service and support. Then, of course, you spend a lot of money on a better trained and better targeted marketing organization.

The whole strategy is about a five-year program.

You have stated that vendors should help educate DP professionals. Why do you think that is necessary?

My impression is that the DP professional who has grown up in the computer shop over the past 20 years must be under tremendous pressure to understand what is happening in the marketplace. During my visits to user sites I have discovered a great range of quality of management of these operations. Some are very advanced and others are very far behind.

DP managers have no sooner committed themselves to one approach when somebody comes along six months later with a better idea. So the emphasis we are making on support and counseling is a very useful service a vendor can provide.

Would you explain Burroughs' coexistence strategy?

There used to be a time when people in our company were convinced the Burroughs architecture was the best and spent all their time getting new users converted to this viewpoint, but really didn't spend time relating our equipment to the rest of the universe. I think this was a very short-sighted approach.

The fact of the matter is we are not the largest company in the market and we have to exist in a world where our market share may be 6% or 7%. So we are operating in a universe in which we are one smallish part of the whole.

To get the maximum out of our products we must always relate to other competitors. Our products are now designed and increasingly will be designed to interface with other vendors' offerings.

Do you think mainframers have been slow to adapt to the lower end, more specialized product user's need?

I don't think that is a fair statement. What is happening in the marketplace is a truly revolutionary period of change. In such a period of change and turmoil it would have been very surprising if young companies — Apple and Convergent Technologies — didn't come up with a better mousetrap.

Does Burroughs plan to enter the personal computer market?

We are putting a lot of emphasis in the small end of the market, but we have carefully stayed away from the personal computer. Our smallest entry-level system costs $10,000.

In the last analysis, the low end of the market may blur into one type of very inexpensive product. At that time we may wish to enter the market.

Most of your competitors have recently introduced a high-end system. When will users see the rumored B7900.

By the end of this year.

Do you see Japanese computer makers making significant inroads into the U.S. computer market?

In technology, production and investment the Japanese are formidable competitors and will make headway.

However, I don't get the impression the situation is the same in computers as for automobiles or television sets, because the most important thing is software, which requires a deep understanding of the market and close relationships with users.

In my opinion, these are a set of circumstances that are very difficult for a foreign competitor to solve.

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Shuttle to Launch Communications Satellites

By Jim Bartimo
CW Staff

CAPE CANAVERAL, Fla. — The fifth flight of the space shuttle mission last week was also its first commercial flight as the *Columbia* carried two satellites into space for launching into geostationary orbit. The satellites, which will carry voice, data and video transmissions, belong to Satellite Business Systems (SBS) and Telesat of Canada.

The *Columbia* was scheduled to launch the first satellite — the SBS-3 — into space eight hours after its Thursday launch. That satellite has 10 transponders that will expand SBS services by 33%. SBS offers integrated switched private networks with capabilities that include teleconferencing and voice and data communications, according to SBS spokesman Bill Dunne, as well as long-distance telephone and message services.

The SBS-3 is the third satellite put up by the company; the first two were launched by the National Aeronautics and Space Administration's (Nasa) Delta 3910 rockets. "We decided five years ago that we wanted our birds to go up on the shuttle," Dunne said. "It's going to cost about $9 million. Our first launches were $24 million each."

The shuttle's lower price tag is expected to be reflected in future communications costs, he added.

Orbiting Garbage Can

The satellite is 21 feet tall, 7 feet in diameter and has an earth weight of 1,200 pounds. "It looks like a garbage can with the lid up," Dunne said.

The satellite "goes out on an explosive bolt," Nasa spokesman Joe McRoberts explained. "It's put out on a platform and popped out into space." Two of the four men traveling on the shuttle — William Lenoir and Joseph Allen, known as "mission specialists" — will cater to the needs of the satellite.

"We're just the truck," McRoberts observed.

SBS plans to put up another satellite via the shuttle in 1984. "The shuttle will allow heavy, more complex satellites to be sent up, allowing smaller earth stations," Dunne said.

Telesat of Canada's satellite, the Anik C3, was scheduled for a Friday launch from the shuttle. The carrier's sixth satellite, it "will carry voice, data and video," a Telesat spokeswoman said.

Orbiting thousands of miles above the earth at a rate to keep pace with the earth's rotation, the satellite will remain stationary around the Rocky Mountain area.

Tools Friendly, Training Tough

(Continued from Page 1)

Since May, users have been trained on use of the TIS query, typically requiring eight hours of instruction. But "now that they have the tools to get at their data elements, you really find out users don't understand what data elements they have available to them," Pustow said.

So his group is currently providing education sessions on data elements — information in the computer system that satisfies a particular function. "For example, somebody wants to know more about inventory control. We go in and discuss the data elements, how they are maintained. Maybe we come up with a simple problem, an application, and write a query to do that," Pustow explained.

"We have had to put together more personalized training with regard to data elements and systems," he added, as well as training materials on how to solve the problem.

Pustow's group developed what it felt was a good step-by-step guide on problem analysis and the methods of gathering information to solve the problem through the use of query. "It's hard enough to get data processing [people] trained in these areas, let alone users," Pustow commented.

DP personnel are becoming more educators than analyst/programmers. "I have had to change roles and responsibilities for people on my staff," Pustow observed.

Another problem, as Pustow sees it, is "turning on" the non-DP-oriented users. "We are doing that with 'back-door' applications, talking to them about what their problems are and what information they need."

Pustow's goal is to convince those users that they have a need that is not being fulfilled. The next step will be to train them to use TIS to fill that need themselves.

There are a wide variety of users within Wehr employing TIS, according to Pustow. One of these is the manager of planning and operations, who uses the facilities to review and audit Wehr concerns that are not doing well.

In one case, after this type of review, he and a team of planners recommended a new manual and different procedures to simplify the use of one Wehr company's computer system. "Using the TIS Query facility, they were able to test out the new procedure," Pustow recalled.

One of Wehr's controllers had a problem with general ledger. He was losing dollars somewhere, but wasn't able to determine where his error lay. Using query, he was quickly able to find the problem and resolve it.

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Technical Writing Field Coming Into Its Own

(Continued from Page 1)

neers or technical people disatisfied with their field. "Now there are courses and there is a definite career path. It is something people see as a real goal."

Diana Patterson, chairwoman of the Association for Computing Machinery's Special Interest Group on Documentation, has found "that 'technical writer' is not what people like to call themselves any more, particularly if they do some kind of analysis work." The terms "documentation analyst" and "specialist" more aptly describe the type of work this field involves, she said.

Technical writers no longer seem to be people with a more technical orientation, but rather people with strong writing ability who have a knack for technical communications, observed Terry Hughes, marketing communications coordinator for Value Computing, Inc. According to Hughes, this has its good points — it has "removed technical writers from the tyranny of the technical point of view" — and its bad points — it has eliminated the technical writers' ability to understand the process and to question specifications.

Today "they don't even know what questions to ask," he said.

However, Amy Kaufman, a technical writer with Advanced Data Management, Inc., believes that what is needed is not a technical background, but more of an understanding of the product. This does not necessarily mean having hands-on knowledge of the workings of the product, she said.

As free-lance technical writer Julie Jenkins sees it, the writers coming out of programs that combine an undergraduate degree in a science with a graduate degree in technical writing are going to be very attractive to prospective employers.

She played down the emphasis on heavy technical background, particularly regarding writing about end-user-oriented products. "All [a writer who is] going to document a personal computer, for example, or a fourth-generation interactive language [has to do] is be able to sit down and use the system and then write about it."

Does technical writing have the same kind of status as programming and other technical jobs within the data processing industry?

Kaufman feels the technical writer is equal in status to the programmer. "Companies are realizing now that without a good writer, they can't sell their product. You can have the best designed system in the world, but unless it is documented, no one is going to know how good it is."

But most firms still see technical writing as a necessary evil, according to Jenkins. "I think technical writers aren't yet considered the professionals that they really are, and I think the value isn't given to them that ought to be."

Salaries are rising, the technical writers contacted agreed, but Terry Hughes was concerned that this has been the result of sexism rather than recognition of the field. The higher salaries have coincided with the entry of more men into the field in recent years, he said, adding that he has seen discrepancies in the salaries of male and female technical writers doing equivalent jobs.

Tech Writers Addressing New Audience

By Lois Paul
CW Staff

The audience that technical writers address has changed markedly — from engineers and technicians to nontechnical end users.

Twenty years ago technical writers were little more than "caddies to engineers. We sort of picked up data and compiled lists," recalled Ken Buechs, manager of technical publications at Honeywell, Inc. "We would throw everything but the kitchen sink into a book, expecting that the customer would sort out what was wrong, what wasn't needed and add whatever was missing and needed."

With nontechnical end users being the final recipients of user manuals, all that has changed. These less technically astute readers may be housewives, clerks, secretaries or office managers, Buechs said. Typically, they reflect the national average, which is at an eighth-grade reading comprehension level, and "writing down to your audience takes more time and much more review."

Other Factors Considered

Now, factors such as the size and format of the books, the volume of material and its packaging, as well as content, must be considered. "However, you may have all kinds of great packaging schemes, but if you use 50-cent words and people can't afford more than 20 cents, you have lost your audience," Buechs warned. "The first thing they do is they say, 'This isn't any easy-to-use package.'"

This presents certain problems for technical writers accustomed to writing for DP professionals. Terry Hughes, marketing communications coordinator for Value Computing, Inc. in Cherry Hill, N.J., said, "It is almost as if I should be back writing for the bank and writing for tellers, at a very simple level."

Amy Kaufman, a technical writer with Advanced Data Management, Inc. in Kingston, N.J., said the manuals that technical writers are producing provide less theory and more how-to instruction. "There is not so much use of very formal words. They use simple words consistently."

Julie Jenkins, a free-lance technical writer who currently is working for Applied Data Research, Inc. in Princeton, N.J., said, "Whenever I write a manual, I think of some guy with a headache at five o'clock in the afternoon who has a job to finish by five but has to go home because his kid is having a birthday party, and he doesn't want to do the job, and he can't find what he needs in the manual. That's the person I write to."

Jenkins said this means the table of contents and the index have to be clear, sentences have to be short and there must be numerous headings to help the user find what he needs on the page.

On-Line Documentation

One method that is increasing in popularity is the use of on-line documentation.

Buechs said users already are employing this "soft documentation" in the form of HELP facilities that are built into many packages. The greatest virtue of this on-line documentation, according to Buechs, is that it helps the user search for and find particular information quickly. "I foresee in the future that the customer will be able to buy his manual in the same media that he does his software," Buechs said. This will enable the user to print selectively and/or tailor the material to specific needs.

A number of the technical writers contacted have had some exposure to on-line documentation. Only one expressed discomfort with it: Joan Houlihan, a contract technical writer in the Boston area who currently is working with Wang Laboratories, Inc., admitted that because she is "book-oriented," she is not as secure with information on a screen as she is with information on a page.

Houlihan suggested combining on-line and printed documentation, with the latter serving at the very least as a form of backup. "I think the trend is to eliminate paper altogether," she said.

Norm De Nardi Presents:

Teachers Taught Tech Writing

BEDFORD, Mass. — The third incarnation of a program to train displaced Massachusetts teachers and other municipal workers for technical writing careers is currently accepting applicants.

Middlesex Community College (MCC) here has run the intensive 20-week training course twice before, with funding from the Massachusetts Division of Vocational Education. The curriculum for the program was developed by representatives from companies such as Wang Laboratories, Inc., Data General Corp., Honeywell, Inc., Prime Computer, Inc. and Digital Equipment Corp.

According to Barbara Sherman, director of community services for MCC, 21 of the 22 participants involved in the first program have found jobs in technical writing (one returned to teaching). Of the 23 students in the second group, who recently finished their program, 19 already have foond employment in the technical writing field.

More information about the program is available from Sherman, who can be reached at MCC, Box T, Springs Road, Bedford, Mass. 01730.

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Intellect isn't just for simple questions. The system can relate information from several files to respond to a query, so that a request doesn't have to be confined to a single file. Users can compare different sets of data with one question, as when comparing actual sales figures with projections. Managers make better decisions with all this information instantly available at their fingertips.

Many non-DP people think it's always been this easy to get information from a computer. That's why they get so frustrated when they discover that they have to learn a complicated formal query language in order to retrieve the data they need. If they have any experience working directly with a computer, they'll be amazed and relieved at how easy it is to use Intellect—even to get the answers to complex questions. Intellect makes the computer the easy-to-use tool it should have been long before now.

Eighteen months ago true English-language data retrieval was not even possible in everyday commercial applications. Although Intellect is a recent and dramatic development, it is already hard at work at over 100 installations in Fortune 500 companies. It has been hailed by publications such as *Business Week* and *Fortune* as the first product to put Artificial Intelligence to practical commercial use. Intellect is used in a wide variety of businesses, such as manufacturing, banking, insurance and retailing—because the system incorporates a lexicon tailored to the way your company does business.

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Richard Ellwood, Vice President of AVCO Corporation's Systems Division, was immediately able to use Intellect's plain English capability to retrieve information from his company's computer.

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The DP Power Structure: A Question of Age

HOUSTON — A graphic demonstration of the gradual erosion of DP's power over the last two decades was illustrated when attendees at the session titled "The Changing Power Structure of DP" broke up into three groups: those who have been in the business since the '50s and '60s, those who date from the '70s and those who came along in the '80s.

The earliest group recalled working in a "kingly" atmosphere in those early days, when DP was a total mystery to everyone else in the company, when the DP department had all the power over equipment and all access to it and when the computer room was a "showpiece," often displayed proudly behind glass windows.

Along with the power, however, went the feeling of never "belonging" to the organization, of always being an outsider, noted Walter Halstead of Halstead Consulting in Short Hills, N.J., spokesman for the early group.

By the '70s, a few CRT terminals had crept into the picture, although the DP department was still trying to "avoid the users," recalled Eugene Cubbage, assistant to the senior vice-president at Portland General Electric Co. in Portland, Ore.

By that time, the computer was being placed a little more discreetly. "We started out showing it off, then we began worrying that someone might blow it up," Cubbage said. The '70s was also a time of transition to on-line environments, so that "no one cared where the computer was anymore," he added.

In the '80s, DP departments are seeing users go elsewhere for the services that it has failed to provide. "Users decide they can't wait two years for their applications, so they go out and buy a mini or a micro," explained John Connel, programmer/analyst for L.L. Bean, Inc. in Freeport, Maine.

"We have glass windows again, but now DP can't get in," Connel said, noting that control is now often by committee or with upper level senior management.

CW Photo by M. Zimmers

'We have to move to a wider role, to large thinking as opposed to very focused thinking,' Jaime Jusidman warned last week.

DPers' Power Linked to Users

(Continued from Page 1)

about itself, its skills, the outside demands on it and the ability to merge the two." Without merging the two, the system becomes "obsolete and ineffective," he said.

Clarity about DP's mission and function is also important. "Maybe its mission is to explore possibilities and act as a guide for users," Jusidman suggested.

Once one has clarity, one can take charge of one's destiny and make a commitment to "the new image of what DP will be," Jusidman continued, referring to the newly coined term, "information resources manager."

With these steps accomplished, DP's contribution will increase and it will have more impact when DPers are regarded as consultants with a new role. Quality and productivity, in turn, will also improve, he added.

"Let's be clear about our mission, our goals, roles and accountability" while trying to create "a new sense of significance, direction and commitment," he counseled.

System Helps Vets Find Service Pals

WASHINGTON, D.C. — A computerized locater system was enlisted last week to help Vietnam veterans seek out their old service friends during the four-day National Salute to Vietnam Veterans here last week. About 10,000 vets were expected to utilize the system, provided by M/A-COM Alanthus Data, Inc. and Dialcom, Inc.

CRT terminals and trained operators were to be stationed at three major hotels to enter data from veterans as they registered. The information was to include name, hotel, home address, dates served in Vietnam and unit number.

Data entered into any terminal could then be retrieved at any other terminal hooked into the system.

M/A-COM contributed the CRT terminals and communications peripherals; Dialcom donated its electronic mail-like Computer Automated List Management System software. It is expected that data on the veterans will be retained by the National Committee on Vietnam Veterans.

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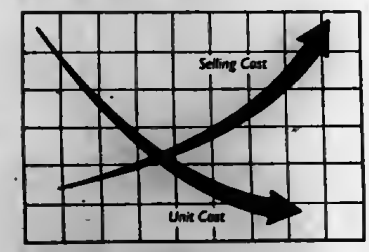

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Managers 'Do Not Have to Fall Victim'

Control Seen as Key Element in User Training

By Marguerite Zientara
CW Staff

HOUSTON — Control is the major element in developing an end-user training program for large-scale applications, Gwaltney Love, user training manager for Bechtel Power Corp. in San Francisco, said here last week.

"You probably will not be able to control the environment in which you must operate, but you do not have to fall victim to it," Love counseled at Data Training '82, a conference sponsored by *Data Training* newspaper.

"The people who have the most information about an application are too busy working with it to talk to you," she observed, encouraging training managers to "Fight for the information you need, stay current and stay flexible."

Because training is needed at the time of implementation — right after program development and acceptance testing — the training manager must develop training in parallel with the application development.

'Real Problems'

"There are real problems with this," Love said, including the fact that trainers do not know the subject (whether accounting or engineering), the subject changes as it is being documented and schedules slip, often without a corresponding slip in the training manager's target date.

The user reference guide and training materials, while not developed for the same uses, are interrelated and should have "a similar tone and the same content," Love said.

In addition, "it makes sense for the same manager to manage both the user guide development and user training," she said. "If this isn't possible, you should develop very tight information links with the manager in charge of user guide development and attend each other's staff meetings."

The training manager works in "a very unstable environment," with many forces beyond his control, Love pointed out. Instability stems from unenforced standards, schedule slippages, design changes, programming changes and government regulation changes.

Beyond the training manager's control are information sources: system external specifications, system internal specifications, the data dictionary, programmers, user analysts and the current system.

Other information sources beyond the training manager's control include current procedures, test results, documentation and system design. The control mechanism in dealing with these uncertainties is flexibility, Love said.

When schedules slip without a corresponding change in the training manager's target date, you are left with less time to complete your product. The solution? An early warning system of fault reports and again, flexibility, according to Love.

In dealing with design or program changes, modular development and

CW at Data Training

an early warning system of change requests can help the training manager.

"Work with the areas you can't control by incorporating control in your own area," Love advised. You can control your staff and your own schedule timing, she said.

Your staff will be comprised of trainers, writers and a technical interface "to do the supertechnical research and impact analysis," she said.

All staff members should have similar characteristics: the ability to cope with frustration, flexibility, initiative, research skills "like Sherlock Holmes," perseverance, creativity, commitment to success and the ability to be a team member.

As for timing, "when the application is a twinkle in the eye of the designer, you can develop standards and prototypes for the user guide as well as for training," Love commented.

"You can also review project standards for internal and external specs, data dictionary contents, review processes, test standards and inspections," she concluded.

CW Photo by M. Zientara

Gwaltney Love

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Keynoter Calls DPers 'Victims of Own Success'

Dan McCracken

By Marguerite Zientara
CW Staff

HOUSTON — DPers are "victims of our own success" in the applications development area, according to Dan McCracken, keynote speaker at Data Training '82, a conference sponsored by *Data Training* newspaper.

"We have the kinds of problems in applications development that many people would like to have in their areas," the author and professor of computer science at City College of New York said. "Computers are so useful for so many people and so many different things, and they're getting cheaper and cheaper every year.

"There's a lot more work out there than we know how to do with con-

CW at Data Training

ventional methods such as Cobol, Basic, Fortran and PL/1," he added, noting that such data base management systems as National CSS, Inc.'s Nomad, Information Builders, Inc.'s Focus, Mathematica Products Group, Inc.'s Ramis II and IBM's Query by Example have high-level inquiry languages.

There are two basic truths he has learned in the course of his career, McCracken claimed:

- It is better to use a higher level language, "with certain specialized exceptions."
- You can never get a bad feature out of a language.

"When we're all dead and gone, the ALTER statement will still be in Cobol," he predicted.

"Don't think I'm knocking Cobol," he interjected. "I'm not saying Cobol will be dead in 10 years or even that it should be.

"And even if we thought it should die, we couldn't kill it," he added, likening it to "crabgrass" and predicting that Cobol will have new features over time.

Higher level languages do, however, make the professional more productive and "let the naive end users do a lot of their own work," McCracken pointed out.

Higher level languages will not apply to all applications, however. "Some jobs will be too new; some will be too specialized. I'm not suggesting Nomad will take over the world."

The pace of change in this "incredibly dynamic field" is "just astonishing, and it's not slowing down at all," he said. This means an increased demand for DP and new tools that need to be developed.

"We'll have to switch our methods, and people will continue to learn new methods because the old ones will not suffice," he said. That means we'll have to use multimedia training courses, films, graphics, microcomputer-based training methods and perhaps the nascent interactive video technology, "although that may be too expensive."

How does McCracken feel about programmer productivity? "I'm in favor of it," he said amid general amusement. "If you have a way of improving programmer productivity, go ahead and use it."

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Need a DP Gift For Christmas?

HOUSTON — There's just 33 shopping days left until Christmas. What to give the DPer who has everything?

If you're beset by that problem, Sakowitz, Inc. may have an answer. The southwestern department store chain has put together an "Ultimate Gift" catalog that promises that, for a paltry $2,000, Mr. Claus will deliver a consultant for a week. For those who need a consultant all year long, the price is $500,000.

The store has already received several calls inquiring about the consultant-for-hire gift, and it expects business to pick up around Thanksgiving, according to Betsey Parish, Sakowitz's vice-president of marketing. Parish explained that the consultants would be selected by ProSource, a Houston-based DP consulting group.

For those curious about the price of the present, Parish said that "we wanted to price the service competitively . . . we don't want people to be able to go next door and get the same thing."

Still interested? Further details are available from Sakowitz, 1111 Main St., Houston, Texas 77001.

If He Is Vital to the Department

IBMer Tells How to Handle a Prima Donna

By Marguerite Zientara
CW Staff

CW at Data Training

HOUSTON — Everyone knows what a prima donna is, but few people know how to deal with one effectively.

For those few "special people" who are vital to the functioning of a department, but difficult to get along with, neurolinguistics is a method of teaching them to get along with coworkers, according to Rodger Bailey, a programmer/analyst for IBM in White Plains, N.Y.

In a lively session at *Data Training* newspaper's Data Training '82 conference here last week, Bailey described "rubber room programmers" who are "locked in a rubber room, fed food and specifications under the door — and out come really good programs."

DP prima donnas have difficulty articulating their contributions and prefer to deal with machines instead of people. They also suffer from "an inability to take in information from others," Bailey noted.

Since these prima donnas have a problem communicating with end users, programmers, managers and other prima donnas, "you have to set up a recognition in that person that he wants to do what he thought he didn't want to do — to communicate effectively with others."

Person's Motivation

In order to do that, one must first determine the direction of the person's motivation, whether it is toward reward (or pain) or away from a management "boot," Bailey said.

Also important to find out are the person's reasons for motivation. Does he do something "because it's there," because "it has to be done" or "only if, when, after, before or until" something else happens?

The source of motivation also varies with the individual, Bailey pointed out. "Some people just love to work, exhibiting an internal source of motivation, while others need prodding to do things, showing external motivation sources," he noted.

"When someone has an internal motivation source and management uses the boot technique of management, the worker ends up not producing or producing in the wrong direction as a form of rebellion, or he'll quit or transfer or engage in subversive political activity [trying to get the boss in trouble]."

Motivation criteria also differ with the individual and may include independence, security, meaningfulness, recognition, respect, efficiency, creativity, enjoyment or pride. "Everyone has his own personal values, and you should find out the words the prima donna uses to describe his," he counseled.

People vary greatly in how they organize reality, Bailey said. Each person generally pays attention to only two or three of the following elements: people, places, things, activities or time, according to Bailey. By listening to people's comments, you can identify those two or three elements that continually come up.

One should also try to determine a prima donna's "organizing referent," whether he is an extrovert (focusing his attention on others) or an introvert (focusing his attention on his own feelings and behavior).

Working patterns exhibit different working styles, Bailey said. Working styles can be independent, cooperative, supervisory or proximity-oriented, in which someone likes to work near but not necessarily with other people.

Work scope can involve a love of detail or preference for an overview-type environment. Some people try to impose their own rules on others, others have their own rules and don't care about others' rules and still others prefer that each person follows his own set of rules.

The primary I/O channels in interpersonal relationships are visual ("I see what you mean"), auditory ("I hear you"), kinesthetic ("We've got a firm grasp on that problem") and olfactory/gustatory ("That stinks"). "You are all of these all the time, but you are mainly one at any one moment," Bailey pointed out.

If you can determine his motivation direction, motivation reason, motivation source and motivation criteria, "you can feed it back to him by framing your words appropriately to get him excited about communicating," Bailey said.

"If you're dealing with a technician who loves state-of-the-art technology and has little patience, tell him, 'We have a state-of-the-art communication skill we can teach you in five minutes and people will love going in and out of your office,'" Bailey said. "Use their terminology and feed it back to them, then just sit back and count your successes."

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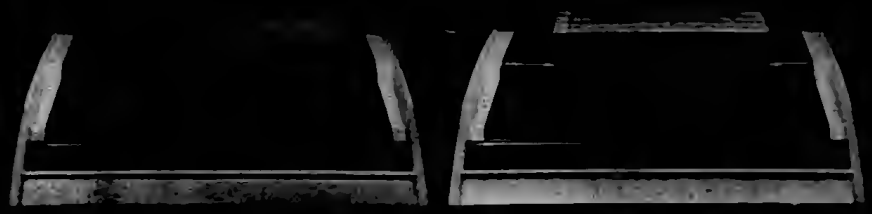

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Exec Presents Three-Stage Move to Automation

By Marguerite Zientara
CW Staff

HOUSTON — "Luck is a crossroads where preparation and opportunity meet."

That is why DP trainers must pay close attention to the trends of the future and be willing and able to step into the role of corporate education director if called upon to do so, advised Roger Sullivan, director of education for Commercial Union Insurance Companies in Boston.

"Shockwave: The Micro Impact on DP Installations" at Data Training '82, sponsoreed by *Data Training* newspaper here last week, was Sullivan's forum for delineating anticipated changes in DP installation structure and professional roles.

After tracing the history of the American work place since the Depression, with emphasis on post-World War II upward mobility and the elimination of repetitive jobs through automation, Sullivan described the "dramatic change" that came with the advent of the microprocessor 10 years ago.

CW at Data Training

"User department managers got tired of waiting for their applications and went to outside time-sharing bureaus," he said.

The problem then was, in the case of Sullivan's own company for example, "we were spending over a million dollars a year for time-sharing." That's when DP began to react to the users' needs by setting up internal time-sharing terminal systems.

"With the advent of micros, we began to see the possibility of computing power moving outside the centralized area; we began to think about office automation," which Sullivan presented in three stages.

The first stage — "which is passing us by at this point" — is the internal time-sharing system based on word processing and terminals tied into the corporate data base, he said.

The impact of the first stage is to put lower-level clerical workers out in user departments and to make typists into word processors. In addition, some supervisors' roles are changing with their acquisition of on-line inquiry systems.

"The DP department suddenly has to train people, to furnish telecommunications capabilities for tie-ins to the computer and to set up information centers," Sullivan said, calling this the "easiest stage."

The second stage concerns the proliferation of personal computers in the corporation. Instead of just access to the corporate data base, "now people want the immediate ability to analyze their own data, and they can have it with the low prices of personal computers," he said.

"This can cause chaos," he pointed out, "because now there are two sets of books — the user's and the corporation's — and the wrong people are getting the wrong pieces of paper and the numbers don't match."

DPers "have got to get back into the picture," Sullivan warned. "We can't say, 'You can't have it,' because the users will do their computing at home if they have to. Rather, we have to give it to them but tie it into a structured approach, and we may have to create new departments to do this.

CW Photo by M. Zientara
Roger Sullivan

"We've got to provide training for these people or they may become dinosaurs," he added. DPers must also restructure the data base for users' access and write new software for them, although "we may have programmers in user departments before long," he speculated.

The third stage of the micro revolution will see multifunctional workstations replacing desks in the office, Sullivan predicted. Each workstation may have a computer, will probably have six flat screens for "data-shuffling," an optical scanner or hard-copy printer, voice-recognition and electronic mail capabilities.

"There will be far fewer supervisory positions on the corporate hierarchy," he said, "with white-collar workers being given decision-making responsibility that used to be in the hands of middle management."

A question that arises from this scenario — and one that DPers must address — is "How will we train people for these lowest level positions when they will be a big jump from high school?" according to Sullivan.

"Smoke and mirrors won't solve the problems of tomorrow," he added. "We must be aware of things that might happen and plan and prepare what to do if they do happen."

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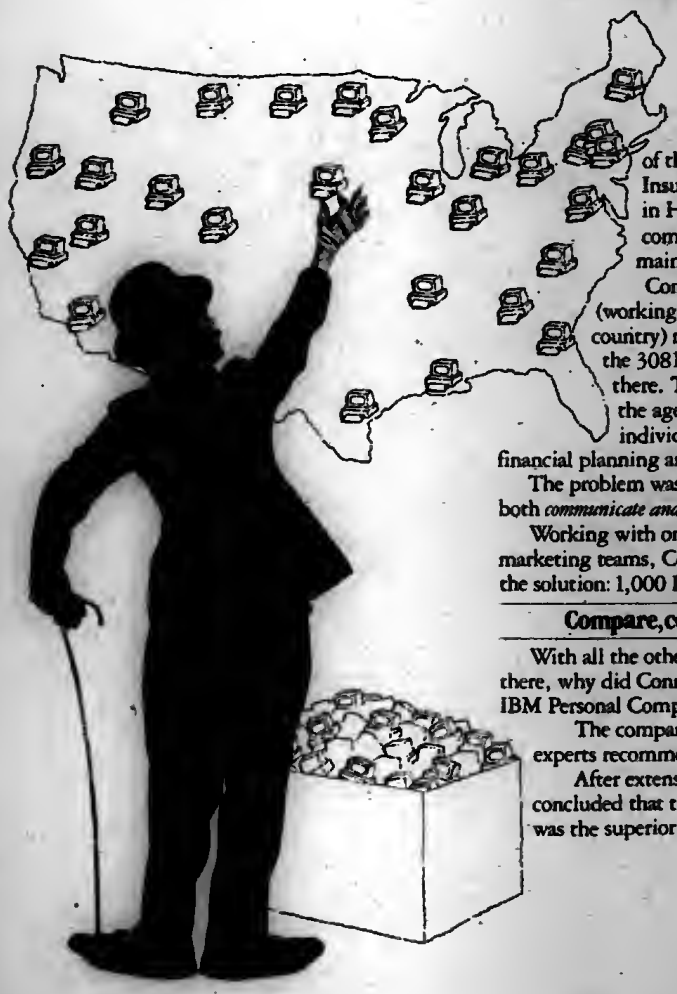

The corporate headquarters of the Connecticut Mutual Life Insurance Company is located in Hartford. So is its central computer, an IBM 3081 mainframe.

Connecticut Mutual's agents (working in offices all across the country) need to communicate with the 3081 to access the data stored there. To serve their clients better, the agents also need their own individual computers for jobs like financial planning and sales proposals.

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Trade Secrets Theft Not "A Fact of Life"

IBM's Cary Warns Against Industry Cynicism

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — The notion that stealing computer industry trade secrets is "a fact of life," "nothing new" and "common as jaywalking" is both untrue and dangerous, IBM Chairman Frank T. Cary said here last week.

The quotes come from newspaper headlines published after Mitsubishi Electric Corp. and Hitachi, Ltd. were charged by federal grand juries last summer with stealing IBM trade secrets.

Contrary to the impression created by these headlines, Cary told the Computer and Business Equipment Manufacturers Association (Cbema) last week, only a "tiny minority" of the computer community engages in unethical conduct. But if such conduct is regarded as ubiquitous and inevitable and companies don't vigorously prosecute the minority, he said, both investors and innovators will be discouraged.

As Cary put it, "If we permit the ethics of the tiny minority to grow, it can become a cancer which will cripple our industry, which depends on innovation and investment."

The computer industry "is not just *any* industry," Cary, who was the featured speaker at Cbema's annual procurement symposium said. "It is *the* industry of the future, an industry that promises to revolutionize the way people work and learn and live."

The need for the computer industry to maintain high ethical standards is particularly important at the moment because of a regulatory reform bill, H.R. 746, now pending in the House of Representatives, Cary observed. The bill would substantially reduce the regulatory burden and the related costs imposed on private industry, he said.

One measure of those costs, Cary said, is a study conducted by the Business Roundtable in the mid-'70s. The study, which involved 48 of the round table's member companies, found that regulatory expenses equaled 43% of their annual investment in research and development.

"Regulation is a burden industry always would like to avoid," Cary added, "but if we fail to discharge our responsibilities, we deserve the regulation that government may impose to control us."

In the case of the pending legislation, he indicated, there is a very real possibility that if the industry ignores its responsibilities, the consequences will be immediate. Although H.R. 746 has been passed by the Senate and President Ronald Reagan has given the measure "top priority for the lame duck session of Congress which begins later this month . . . it faces the opposition of a number of special-interest groups."

Efforts to Revamp

Although Cary's speech was devoted mainly to ethics, he touched on current efforts to revamp the U.S. telecommunications industry.

"Today, the debate no longer focuses on whether AT&T should compete, but on what ground rules should govern that competition — specifically, ground rules which will prevent cross-subsidization of AT&T's competitive units by its regulated business," Cary said.

"Obviously, AT&T is going to become a bigger competitor for all of us in the industry. I for one would prefer to talk about competition [rather] than take on AT&T in the marketplace. But we can't just talk about free competitive enterprise. We also have to engage in it, even when it is a bit uncomfortable," he said.

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Library Net Gets Loan System

STANFORD, Calif. — The Research Libraries Group, Inc. implemented a new interlibrary loan (ILL) computer system as part of its Research Libraries Information Network (Rlin) on Sept. 1.

The new ILL system replaces its message system, which was used by members to transmit loan and photocopy requests from their respective libraries throughout the U.S. The new system reportedly offers two major features to reduce the amount of time spent by the interlibrary loan staff to process single requests. Loan requests can now be created by transfer of bibliographic data from records in the general Rlin data base of over seven million books, films, maps, recordings, musical scores and serials records. Also, several potential lenders can be identified in the initial request, and a negative response from the first one will automatically forward the request to the next possible lender.

Members of the Research Libraries Group include Columbia University, the New York Public Library, Stanford University, Yale University, University of Michigan, Dartmouth College and Cornell University. The group is based at Jordan Quadrangle, Stanford, Calif. 94305.

Small Systems Seen Aiding, Thwarting DPers

By Tom Henkel
CW Staff

WILLOW GROVE, Pa. — DPers may be off-loading some corporate power while lightening their processing work load with small business systems.

Based on a recent survey of 322 DP managers in the U.S. and Canada, most said that when it comes to accounting, file and record maintenance and word processing, small business computers have taken over at least part of the DP department's work load.

Furthermore, the DP managers usually have little or no say over the small business systems used in their firms. In fact, only 16% of managers polled said that the DP manager is in charge of buying small business systems, and just 37% said that DP technicians get to use the systems.

Conducted by the Administrative Management Society (AMS) in 140 cities in North America, 71% of the respondents said their firm has either installed or is seriously thinking of installing a small business system. The AMS defines a small business system as a minicomputer, microcomputer, desktop or personal computer.

IBM Tied With Apple

IBM and Apple Computer, Inc. are virtually tied for the lead in the small business systems market, according to survey respondents.

IBM edged Apple by a 28% to 26% margin, the AMS noted. Radio Shack, Digital Equipment Corp. and Wang Laboratories, Inc. hold the third, fourth and fifth positions, mentioned by 12%, 7% and 7% of the managers respectively, according to the survey.

Middle managers are the primary users of the small business systems, according to 54% of those polled, while 35% defined small business systems users in their organizations as belonging to upper management. Administrative services is the primary use for corporate small business systems, the area of responsibility held by 52% of those polled. Twenty-one percent of the managers said they were in finance, 14% are involved in the personnel area and 11% said they were in the information systems area.

Slightly more than half of the managers polled (52%) worked in relatively small companies (employing between 100 and 1000), while 12% said they were employed by firms with 1,000 to 10,000 employees. The rest of the managers worked for firmes employing less than 100 people, AMS said.

A majority of the managers (59%) said their firm uses between one and three small business systems. Seventeen percent said four to 10 systems were installed, and 4% said between 10 and 20 systems were used. Ten percent of those polled said their firm uses more than 20 small business systems.

AMS presented the results of the survey in a recent edition of its publication, *Management World*.

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Two AI Meets Set in December

TORRANCE, Calif. — The Education Foundation of the Data Processing Management Association (EF/DPMA) will sponsor two conferences on artificial intelligence (AI): Dec. 9-10 in San Jose, Calif., and Dec. 13-14 in Los Angeles.

The programs reportedly will feature 15 experts from government, industry and education who will address a variety of topics, including critical hardware/software technologies and architectural techniques; the U.S. Department of Defense's current activites and future plans in AI/robotics; industry participation; the impact of very large-scale/very high-speed integrated circuit technology; Japanese fifth-generation computing; and setting up AI programs in companies.

Registration costs $445 for either conference.

Further information is available from EF/DPMA Conferences, Department AI, P.O. Box 3608, Torrance, Calif. 90510.

December Seminar To Cover Bell Net

NEW YORK — Six executives from American Bell, Inc. will participate in a seminar devoted to the company's Advanced Information Systems Net 1000 Service. The seminar will be held Dec. 6-8 at the Sheraton Hotel here.

Bell executives on the program include S. J. Barbera, chief executive officer; W. R. Smith, general manager; B. P. Donohue III, executive director of research and development; A. F. Rehert, director of marketing; L. R. Goodwin, director of sales; and J. F. McDonald, director of systems development laboratory.

Topics to be addressed include a strategic view of Net 1000, service overview, logical structure, vendor support, overall system design, architectural highlights and Net 1000 applications.

The registration fee is $795. More information is available from the seminar sponsor, Technology Transfer Institute, at 741 10th St., Santa Monica, Calif. 90402.

Value to Business Seen As Bottom Line for MIS

By Paul Gillin
CW Staff

NEWTON, Mass. — Management information systems (MIS) managers are basing too many of their automation decisions on cost and technical factors without fully considering the value of the automation to the business.

That was the consensus of three speakers at a recent strategic planning seminar here sponsored by the Boston chapter of the Society for Information Management. The speakers stressed that advancements in information technology have made it crucial for MIS managers to participate more actively in an organization's strategic planning.

Although many companies have upgraded MIS to a corporate-level position, a large number of MIS managers are ill-equipped to assess the impact of their decisions to the bottom line, according to speakers David Robinson and Gerald Loev, both vice-presidents at Index Systems, Inc., a Cambridge, Mass., consulting firm, and Dr. Michael Scott Morton, a professor at MIT's Sloan School of Management.

"Determining value is probably the thing we [MIS managers] have done worst over the last few years," Robinson said. "We're not very good at determining business value so we make decisions based on cost and technical factors.

"You have to choose your technology carefully," he added. "Managers are hit with lists and lists of technology. They hear that office automation is important, distributed processing is important and communications is important. But how often do managers get to consider what's best for their business? You can't be good at everything."

Robinson criticized the tendency of many businesses to install large centralized information systems to run a diversity of enterprises. "Many companies take a uniform approach to information systems management when most companies are not uniform in the businesses they're running," he said. "In fact, most organizations are running different businesses inside a big business and these segments should get a different share of the resources. Automating everything the same way doesn't make sense."

MIS managers and strategic planners need to work together to make automation decisions based upon the strategic plans for each segment of the business, Robinson said. A rapidly growing segment in a competitive marketplace should look to make MIS decisions that lead to tangible returns while slow growth concerns should incline toward fewer risks and greater control of internal costs.

MIS managers must shoulder the burden of learning to speak the language of business and applying technology to strategic planning, Morton said. "If your senior management isn't paying attention to strategic planning, don't worry. They or their replacements soon will be."

Morton drew a distinction between the goal-oriented function of strategic planning and the time-line method of long-range planning. "Strategic planning says, 'Here's where we are and here's where we want to be,'" he said. "It affects the future, but the decisions may take place tomorrow."

Such planning is even more essential in a changing economic climate, he asserted. "If you don't know where you're going, all roads lead there."

In companies in which data processing is still regarded as a back-room support function, he said, it is up to the information systems manager to take the initiative. "Be proactive, not reactive," he urged. "There's no point in waiting for someone else" to implement information planning.

"Look at it from the point of view

(Continued on Page 18)

Managers Told Of Budget Shock

NEWTON, Mass. — DP managers should start planning now for possible budgetary shock when the time comes to install new applications software, according to David Robinson, vice-president of Index Systems, Inc., a Cambridge, Mass.-based consulting group.

Robinson told participants in a recent strategic planning seminar here that many companies that have not yet installed second-generation applications software may be unaware of the high costs involved. Software typically has a working life of 10 to 15 years, Robinson said, after which it becomes outmoded and difficult to maintain. So a company that has spent relatively little on new applications in recent years may soon come up against a wall of expensive upgrades.

"I argue that half of all applications software will have to be replaced within the next five years," Robinson said. "You just can't pay to keep them anymore."

Using a formula he called "not far off the mark," Robinson said that a company's applications software investment is typically 2½ times the amount it spends annually on operations. That is $17 million for a company with a $7 million operations budget, he said.

If half of that software needs to be replaced within five years, he said, that amounts to an $8.5 million investment "just to stay in place."

Moreover, he said, "When you announce a development project, people come out of the woodwork with needs. You get stuck replacing old software and throwing out money to add new software as quickly as possible."

Robinson advised data processing managers to realize their software base is depreciating and to plan for those expenses before they come up. "It's a matter of saying, 'We have a shortage now' vs. realizing you have a shortage three years from now," he said. "If you begin planning now, you will at least have time to prepare for it."

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MIS Managers Told to Act, Not React, by MIT Professor

By Paul Gillin
CW Staff

NEWTON, Mass. — Management information systems (MIS) managers must learn to "be proactive, not reactive" if their businesses are to make intelligent automation decisions, according to Michael Scott Morton, a professor at MIT's Sloan School of Management.

Speaking here at a strategic planning seminar recently, Morton outlined actions MIS managers can take to build their image as key business drivers:

• *Learn about the business* by asking the right questions of the right people. Learn from strategic planners and executives what the long-range goals of the business are, and look for ways to apply your technology to those directions.

Recommend applications of information systems whenever possible.

• *Build a pilot project* in a highly visible area. There are likely to be several functions of the business that have never been considered for automation.

• *Stay on top of literature* in the field by monitoring the trade press and popular media. Make copies of relevant articles and send them to influential people within the organization.

• *Compare your competitors' information systems to your information systems.* Find out where the competition is gaining an advantage and bring your findings to the attention of upper management.

In addition, Gerald Loev, vice-president of the Index Systems, Inc. consulting firm in Cambridge, Mass., recommended new ways in which MIS strategy should be regarded within a business:

• *Look for new applications of technology.* Sophisticated systems have made automation possible in everything from purchasing to inventory to office automation to distribution. Look beyond traditional functions to find areas of the business that have never been considered for automation.

• *Take a new look at the benefits of technology.* When assessing the cost effectiveness of an automation project, look at different benefits that might accrue. Don't focus on a 5% drop in production costs if the real benefit is a doubling of work capacity.

Changes that might be effected by automation (and some examples) include:

• *Enhanced productivity,* from changing the ways in which functions have traditionally been performed (computer-aided design and manufacturing).

• *Product/service changes* that are visible to the customer (automatic teller machines).

• *Communications changes* linking separate entities within the business (automated spare parts and order entry procedures).

MIS Business Value Cited as Bottom Line

(Continued from Page 17)

that, 'I've got a problem, here's the way I see it and here's what I can do about it.' You can get your head chopped off, but if you make intelligent decisions, you can also get the business moving forward."

Morton said that companies that automate selectively and wisely could find that the technology carries them in profitable directions.

As an example, he cited one reseller of pharmaceuticals that installed a computer to manage inventory. The company later moved terminals into client hospitals for remote order entry, expanded its product line and finally instituted on-line third party billing.

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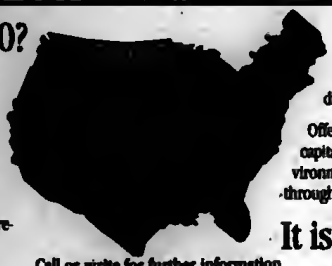

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Accessible by Doctors

Tax Man Starts Cancer Data Bank

Richard Bloch

By Marguerite Zientara
CW Staff

COLUMBUS, Ohio — Richard Bloch, co-founder and chairman of one of the nation's largest preparers of income tax returns, is starting a cancer treatment data bank that will be accessible by doctors across the U.S. via communicating terminals, word processors or personal computers.

Slated to begin next July 1, the data bank would be available through Compuserve, Inc. here, a nationwide time-sharing service owned by H&R Block, Inc. For a one-time fee of $10, a doctor would be able to access data on "every treatment known for cancer," now being gathered by the National Cancer Institute from the U.S., Europe and Asia, Bloch said.

"This is not meant to make money; it's meant to save lives," he emphasized.

System for Patients

The system "would be for patients to request their doctors to use," Bloch explained, claiming, "When someone has cancer, he needs medical help; I don't think people should try to cure themselves."

A former lung cancer patient who was once diagnosed as terminal but is now considered cured, Bloch envisions a system whereby "the patient will read the information over the doctor's shoulder and therefore will know the options available."

And why shouldn't the ordinary citizen be privy to such information? "It wouldn't mean anything to them," Bloch said. "I don't believe the lay person would know what questions to ask [the system]."

Noting that about 160,000 people die annually of cancer who could have been cured with early detection and treatment, Bloch said, "The biggest problem with cancer is mistreatment.

"Many doctors faced with cancer patients graduated from medical school 30 years ago, when the disease was untreatable," Bloch noted. "They tell the patient to go home and die and the patient does. One [doctor or hospital] may know about a treatment and another won't.

"Now, if a new treatment is developed, it's between two and three years before it is disseminated to the boondocks." With the data bank, a perfected treatment "will be in the computer tomorrow," Bloch noted.

To utilize the system, a doctor would input data on a specific patient — the patient's age, location, the type of cancer and other health-related information about the patient. "Cancer treatment is totally different for someone who's 30 than for someone who's 80," Bloch pointed out.

When all information has been input, "the system would then immediately give back all the recommended therapies from all over the world so the patient has a choice."

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COMDEX

Texaco Hopes MIS Will Pump Profits, Hold Costs

By Robert Batt
CW West Coast Bureau

HOUSTON — The worldwide economic recession and a continued decline in demand for petroleum products has meant that the energy industry is looking increasingly to management information systems (MIS) to help control costs and boost profits.

One company typical of the changes taking place is Texaco, Inc.

Texaco began operations in the Lone Star state in 1902 and for many years was reportedly the No. 1 gas company in the nation.

Those days have passed, and the company has undertaken a major streamlining over the past five years, withdrawing from all or part of 19 states in a bid to cut its long supply lines and to introduce a more efficient management structure.

With oil production in the Free World expected to fall to 46 million barrel/day from a 1979 high of 53.2 million barrel/day, MIS executives at Texaco are looking for ways in which computer technology can make for a leaner, more efficient operation.

"Our company sees the area of computerization as having a major impact on the future profitability of the company. We have increased our investment in computers by 15% this year and we expect to see a lot more automation in areas such as oil refining and process control," said Les Hodges, general manager of computer and information systems.

Hodges asserted that the major focus within MIS at Texaco was on interactive systems rather than large development systems. Much of the emphasis over the next 18 months, he said, will be on placing terminals on executives' desks.

"This is where the productivity gains are to be made. If we capture all of our data about our customers and our management processes it is amazing the uses to which it can be put. The key to this will be user-friendly languages and that is why we are promoting personal computers so heavily within the corporation," he added.

In order to coordinate technology policy within the company, Texaco executives have set up technical, human resource and capital investment plans. As part of the planning process, DPers within the company liaise with end users as to what executive workstations they require. Hodges is not concerned about threats to the integrity of the data. "Information is more secure in a data bank than it ever was in a file cabinet," he contended.

Hodges sees as his most critical job the selection of DP projects that are going to be profitable for the corporation. Last year the company had revenues of $59 billion. The MIS function has a budget in excess of $100 million and the corporation is a big user of IBM-compatible equipment, such as from Sperry Univac, Control Data Corp., Datapoint Corp. and Data General Corp.

With such a heavy investment in computers Texaco has to adopt strict criteria in managing future developments. "We look for projects to which the user has a high commitment. If the idea is only a gleam in the eye of a computer programmer it will probably not be successful. Furthermore, if a project needs to be sold to senior management we believe it is the user department that has to do the selling," Hodges added.

Planning Vital To Oil's MIS

Given the long-term nature of development work in the oil industry and the huge capital expenditures involved in exploration and production, long- and short-term planning play a vital role within the management information systems (MIS) function.

While computing resources appear to have been less severely impacted than other corporate areas, a good deal of belt tightening has, nevertheless, been the order of the day. "The recession in the oil industry has caused MIS executives in general to scale down their expansion plans, re-examine their development work and reprioritize their activities so that the emphasis is on shorter term benefits rather than on long-term goals," said industry observer Arch Johnston.

The real battles, according to the principal at New York-based Kaufman, Johnston and Associates, are going to be fought over the 1983 budgets, which form the basis for short-term planning. "Budgets in general are going to be flattened, projects intended for start-up in 1983 are going to be re-examined and those projects where the benefits will not materialize except in the longer term will be delayed," he added.

Not everyone is as badly off, however. Standard Oil of California expects to increase its computing capacity by 40% this year and 30% next year. According to the general manager of Standard's Computer Services Department, Charles Oldenburg, there is no backlog of DP projects. Project ownership, he said, is placed firmly in the hands of the end users. They take responsibility for a project and commit resources and manpower until it is completed.

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MIS Execs Seek More Effective Tools

Oil Slump Shifts DP Focus to End-User Solutions

By Robert Batt
CW West Coast Bureau

HOUSTON — The slowdown in the fortunes of the oil industry has led to a greater emphasis on end-user computing as management information systems' (MIS) executives attempt to fulfill the demand for more effective productivity tools.

Many industry executives now agree that the increasingly rapid trend toward distributed processing is leading to more complex management problems in the energy field as the managers' span of control grows steadily wider.

Distributed processing, more complex interconnected technology and a greater number of end users adept at computing means the scope of skills required by the manager will be greater as the span of control grows more difficult, said Robert Reed, general manager of information and computer services at Shell Oil Co., based here.

Reed asserted that developments such as the transfer of large files to field organizations and the spread of data will lead to the emergence of new, powerful and important data processing jobs in the oil industry. "We are not cutting back on our recruitment even at a time of recession because we want a flow of people into the organization to prepare them for these new tasks," he added.

The increasing emphasis on improving the productivity of the DP staff is also leading to an accelerated use of interactive programming and design aids.

End-User Solutions

"There is an awakening of interest in end-user types of solutions for analysis and day-to-day operations," claimed Arch Johnston, principal at Kaufman, Johnston and Associates, a New York-based management consultant. "With a tremendous increase in demand for computer resources, MIS executives are looking for solutions that give the end user greater scope and that call for relatively little DP manpower to be used," he added.

One way in which this is being done, Johnston said, is by distributing computer-related functions while maintaining central control within MIS. The effect is to give users more involvement with particular systems, for example, accounts payable, where the front-end functions are distributed to multiple points within an organization.

"What I see happening in the oil industry is a distribution of function rather than a distribution of total processing power. While total processing may be the best solution in some cases, the start-up costs are very large .The distribution of functions involves much smaller costs and this is an important consideration at a time of recession," Johnston said.

The distribution of computing functions to end users is something that requires careful management in organizations as large as the oil conglomerates. At Shell, for example, business coordination managers have been assigned to every department. Within the user departments, their job is to help determine user needs and to act as the user's advocate in interaction with the Information and Computer Services Group (ICS).

"We expect to see some programming groups working in user departments but under ICS control in order to ensure standards and provide career direction," Reed said.

At Standard Oil Co. of California in San Francisco, the emphasis is on improving in-house MIS productivity. "One of the things the MIS function has to do is put its own house in order and get its own productivity rising. There are tremendous opportunities to automate within the computer center itself," claimed Charles Oldenburg, general manager of California Standard's Computer Services Department.

According to Oldenburg, using the company's on-line system, DP professionals can, in the programming phase of a project, generate up to 4,000 lines of code per person, per month, compared with an industry average of 800 lines. "We are now putting the emphasis on improving the analysis phase of projects, which is, of course, a larger proportion than the programming phase," Oldenburg said.

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Guide Series Debuts For Managing in DP

PENNSAUKEN, N.J. — A series of eight guides to managing DP functions has been announced by Auerbach Publishers, Inc.

The how-to series includes these guides: "Data Processing Management," "Computer Programming Management," "Data Communications Management," "Data Base Management," "Systems Development Management," "Data Center Operations Management," "EDP Auditing and Distributed Processing Management."

Each book costs $11.95 from 6560 N. Park Drive, Pennsauken, N.J. 08109.

Productivity Increased, Time Saved

Micro Firm Improves Planning With Package

ENGLEWOOD, Colo. — Even microcomputer manufacturers get the financial blues. However, here at Monolithic Systems Corp., a minicomputer and a financial software package are helping the firm stay out of the red.

The software, supplied by Software Management Systems, Inc., has reportedly improved the company's financial planning and data base search capabilities, according to Joel Pitchford, Monolithic's management information systems (MIS) director.

The firm previously used just a Prime Computer, Inc. I-1000 series data base processor for finanical planning. However, updating the data base at each reporting period was often difficult. Some of Monolithic's departments used microcomputers with a spreadsheet program, but others were not equipped with micros. Furthermore, the departments using micros had to manually extract information from the Prime data base.

Enter Cybil

Enter Cybil, a software program developed by the Englewood, Colo.-based Software Management Systems and designed specifically for budgeting, market planning, pricing studies, costing studies, cash-flow management and tax planning. Using Cybil, programmers at the firm can set up an account for each department. These departments, which consist of 130 employees, can then access the Prime data base for specific data, Pitchford said.

For example, the production control department can give the marketing department spreadsheets that contain data from the master production schedule, he noted.

Each Cybil file generates its own documentation, and changes to the file are automatically documented. Spreadsheets can be saved with notations of what employee saved them. This, Pitchford said, protects data in situations where more than one person has access to the same information.

No DP Background

Users of the financial package do not have to have a data processing background to use it, Pitchford claimed. "In a situation where all departments are inputting to a system, everything has to be simple. About one hour of training is all it takes to learn it."

When the package was first installed, Pitchford noted there was some resistance, especially in departments that were not highly computerized. Now, department managers are using the package in more ways than were originally expected.

Pitchford would not put a dollar figure on savings realized by his firm since the software package was installed. However, he noted, "Cybil saves time and increases the productivity of both our people and our computer. In a difficult business climate, a product that provides that kind of advantage is a definite asset for our company."

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Changing Roles Of Programmers

CHICAGO — Programmers may not be an endangered species, but their roles are going to have to evolve to reflect the way information will be used by workers.

Taking a futuristic view of the information society at a recent conference here, William R. Stow III predicted programmers would fall into two categories — tool builders and information specialists.

Stow, chief executive officer of Relational Systems international Corp., explained that tool builders would "use hand-coding techniques to develop modules" for the development of large applications systems. Information specialists — experts in disciplines such as accounting — will use these modules to build "expert" applications for specific tasks. These basic applications, in turn, will be modifiable by professionals to suit their particular on-the-job needs, according to Stow.

"The use of experts is a reason for the survival of society, but users should not be bound by the way experts see the world," Stow remarked. A standard accounts receivable package, for example, could be a model, but if the nonprogrammer can modify it, he has achieved his own view of the information, according to Stow.

The sophisticated programs needed by large organizations cannot be done by hand, which is the reason new types of programmers are needed. Information systems directors should start identifying those members of their staffs who would be better as tool builders and those who would be better as information specialists, he said.

By using this approach to new systems, information system managers do not have to demand that people change the way they work, he concluded.

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How It All Began

Tips on Buying a Micro-Based Business System

By Mark Garetz
Special to CW‡

Selecting a microcomputer or microcomputer-based business system today is no easy task. There are literally hundreds of systems to choose from, each one offering its own particular software or hardware benefits.

However, for all its present strengths, the microcomputer actually grew from humble beginnings. The market was started from a magazine article that gave details on how to construct a small machine called the Altair, manufactured by Micro Instrumentation and Telemetry Systems (Mits), now defunct.

This computer (Altair) was based on an Intel Corp. 8080 microprocessor and consisted of a case, front panel and circuit cards, interconnected by a motherboard that had 100 pins. It sold for abut $395 and had 256 bytes of memory.

Some enterprising individuals decided that there was a need for more add-on circuit cards for the Altair, such as higher density memory boards, color graphics boards, I/O boards and more. Many small companies then began to make boards for the "Altair Bus." A company named IMS Associates, Inc. (Imsai) then decided that they could build a system better than did Mits. The Imsai 8080 caught on quite well and the bus became the "Altair-Imsai Bus."

More companies jumped into the market and each attempted to add their name to the name of the bus, thus phrases like "Altair-Imsai-Cromemco-Polymorphic-Processor Technology Bus" were not uncommon. Something had to be done.

S-100 Bus Named

Also, at that time, Roger Melen, co-founder of Cromemco, Inc., came up with the idea of calling the bus the "S-100 Bus" — S for standard and 100 for the number of pins. The name caught on and remains today.

The functions of the various pins on the S-100 bus were more or less standardized, but incompatibility between various manufacturers' products plagued the industry.

Two designers, George Morrow and Howard Fullmer, decided to draft a standard document that would specify the exact function of each signal line as well as its timing specifications. The purpose was to get the Institute of Electrical and Electronics Engineers (IEEE) to adopt the proposal as a standard. While the two worked at it, several enhancements were added, including the capability to handle 16-bit CPUs, multiple CPUs and up to 16M bytes of memory.

The IEEE liked the idea and a committee was formed, which assigned the task number 696 to the S-100 standard, and the proposal was first published in the July 1979 issue of *IEEE Computer Magazine*. Today, the standard is still not quite official, but it is very close. As of this writing, the standard has been passed through two levels of committees in the IEEE and has two more to go. Final approval of the standard is expected this month.

Advice to Users

The advice to potential users looking to purchase an S-100 system may seem obvious: look for the phrase "S-100/IEEE 696-compatible" or "fully conforms to the S-100/IEEE 696 standard." This may not be a true indication of a product's merit, but at least it is a place to start.

Be aware that some manufacturers may make claims about IEEE compatibility, but there may be some deviations from the standard that are not obvious, that are not mentioned in an ad, or about which the manufacturer or his representative for supporting documentation (such as timing diagrams) did not include.

In addition to the above general comment, here are some other guidelines:

- If at all possible, avoid buying products direct from manufacturers. Buy instead from a local dealer or systems house. Generally, manufacturers can not provide adequate support and the "hand-holding" usually necessary when bringing up a system.
- Do not be afraid to check out local dealers or systems houses thoroughly. Ask to visit some of their previous customers who have bought systems similar in capabilities to the one under consideration. Ask those customers how they like the systems, how easy they are to use and, most importantly, if they perform as advertised.
- If there is no local dealer (or one who is only interested in selling Apple Computer, Inc. products), look around for an independent consultant to help put the system together. Perhaps the Apple dealer knows someone. Local computer clubs are a good place to find help, and even a classified ad in the local newspaper might work. Again, check any consultant's references very carefully.
- Make sure the system can be easily upgraded to accommodate future computing needs. Can a 16-bit CPU be added at a later date? Can more users be added? More mass storage? More memory? These are important questions because the main advantage of buying an S-100 system is the capability to upgrade and change the system when the user's needs change.
- Remember that you always get what you pay for. The most expensive system may be overpriced, but the least expensive "bargain" system may cost a lot more in the long run.
- Compare warranties: Does the manufacturer or dealer offer a substantial warranty? Is a maintenance contract available? Is there a one-day (or same-day) board replacement program? When a computer goes down, it can cost you a lot.
- Make sure to pay for all software. Don't fall for the trick of a dealer saying "Oh, I'll throw in any software you want." He is probably stealing the software by offering bootleg copies of programs he owns. This is unethical and illegal. It hurts users in the long run because software houses will not be able to stay in business. It may even hurt the user in the short run because he will not get any support from the software house if there is a bug or other problem. Make sure to get a valid user agreement or license for all software purchased or provided.
- Make sure that the dealer or systems house has the capability to make custom modifications to any "canned" applications packages and be prepared to pay for this service. Don't believe that they will fit a specific application "right off the diskette."
- Users new to computers, or even those upgrading from an Apple, Radio Shack TRS-80 or other small machine, should not believe that standard incompatibility problems still exist. Get some professional help.
- Make sure the system is well documented, and get owner's manuals for all the parts of the system. They may never be needed, but if the dealer that sold the system goes out of business and the system ever goes down, the technician that fixes it will be ever grateful (and it will most likely cost a lot less). Also, make sure the user's manual for the system is professionally done. A user doesn't want to be calling the dealer every time he has a question.

Garetz is president of Compupro, Inc., based in San Leandro, Calif.

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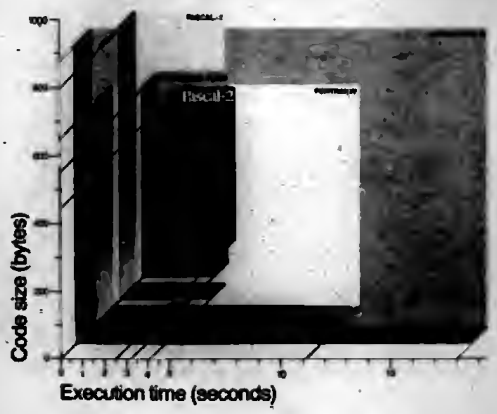

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Development of Automatons Discussed by ACM Speaker

By Marguerite Zientara
CW Staff

DALLAS — Is the development of automatons a threat to our self-esteem and therefore to the dignity of human beings?

As the sole speaker at a recent Association for Computing Machinery conference session here, Walter Maner, computer science professor and director of the artificial intelligence (AI) project at Old Dominion University in Norfolk, Va., attempted to present both sides of the issue.

CW Photo by M. Zientara
Walter Maner

"What Tasks Should Robots Perform? A Social Planning Issue" dealt with "the major issue of our time regarding robotics," according to Maner, who tried to "dispense with the fallacies surrounding robotics, especially those regarding robots taking over the world — ascribed to by people who watch *Star Trek* three times a week."

The issue boils down to two questions, according to Maner:

- Do automatic systems merely redefine what is considered to be worthwhile, dignified, uniquely human behavior?
- Do automatic aystems "menialize" the human skills they modify or replace?

"If such systems redefine worthwhile behavior, this is not a serious issue," Maner said. "The history of the human race has been a constant redefining of dignified behavior. Making fire was once considered dignified."

If, on the other hand, human skills are "menialized," the issue is "more profound and raises very serious social planning issues," he pointed out. "If that is true, then by creating automata we are committing intellectual genocide that strikes at the roots of society, ethics, law, religion and just personal sanity."

As an example, Maner offered the case of someone whose life's work has been replaced by a microprocessor-controlled machine, which performs the task as reliably as a human. Instead of being skeptical of the machine's ability to do the job, the person will now be "profoundly disturbed that his job has been reduced to a set of rules and mechanical methods," Maner said.

"The fact that a lifetime skill has been trivialized and cheapened in the process is more disturbing to him than the loss of his job," he added, noting that "almost any expert system can be built with about 50 AI rules."

Job Displacement

Acknowledging that job displacement is a "very serious issue," Maner advised that "retraining should be offered by employers and accepted by employees; there is now an important role for continuing education."

Education is, in fact, the solution to the distrust and fear surrounding the robotics issue, he added. The person who is disturbed at the trivialization of his life's work is simply "fundamentally uninformed" about computers. "If we teach him more, he'll feel less threatened."

Reinforcing the benefits of robotics are robots' abilities to do jobs that are undignified for humans (such as cleaning up Three Mile Island), jobs where decisions are time-critical, jobs where humans are "beaten down with trivia and monotony" (counting and stacking money in federal banks) or where they can help the handicapped reach their internal goals as individuals, he said.

The strongest argument against the possibility of a robot takeover lies in the "hidden agenda" of human interaction, Maner explained. Politicians, for example, are very good at shaking hands. But "if we could build a machine to get the grip right, hold on only for the right amount of time and not crush anyone's hand, politicians still wouldn't buy it."

The reason? "The hidden agenda of a handshake says, 'We're on the same level. You respect me and I respect you.'" Maner said. "Just because machines could do many things doesn't mean they would.

"The hidden agenda comes from our biological past and robots will never have that," he noted. "The act of communication is so complex — including eye contact, body language and voice inflection — that it can't be replicated in an automated system."

Anderson Voted AIM President

RANCHO MIRAGE, Calif. — James K. Anderson, president of Pacific First Federal Savings and Loan Bank in Tacoma, Wash., was elected president of the Association of Information Managers (AIM) when the group held its annual meeting here last month.

Covel Allen, vice-president of Western Savings and Loan Bank in Phoenix, was elected vice-president of AIM.

Three new board members were also announced: A. Paul Cox, president and chief executive officer of Data Systems Corp. in Richmond, Va.; Stephen K. Shepherd, senior vice-president of data processing at Savers Federal Savings & Loan Bank of Little Rock, Ark.; and Leslie M. Muma, president of Sunshine State Systems, Inc. in Tampa, Fla.

More information on AIM can be obtained from AIM Director Michael Hoogendyk, Suite 2221, 111 E. Wacker Drive, Chicago, Ill. 60601.

'Smooth Flow' Towards Robotics

Software AI Experts Seen Commercial Successes

By Susan Blakeney
CW Staff

While many applications utilizing artificial intelligence (AI) are still in the formative stage, software experts working in the field are enjoying more attention and some commercial success of late.

These are the feelings of Dr. Scott Fahlman of Carnegie-Mellon University, which recently hosted the National Conference on Artificial Intelligence. Fahlman warned not to expect an AI "revolution," but he did say "there's a smooth flow" currently under way in the robotics/artificial intelligence direction.

Three areas of special interest are industrial robotics, natural-language front ends to various types of systems and "expert systems" or "knowledge-based systems," according to Fahlman.

Trend to Watch

A trend to watch in the first group is the development of sophisticated visual and tactile sensors for the production or manufacturing environment. With the capability to react to various forms of stimulation, these systems go one step beyond existing robotics that are confined to one or two rote movements, Fahlman explained.

The second area of development, natural-language front ends, will allow users to query and converse with the data base more freely. Fahlman said the work in this area is confined to typed or CRT-terminal-originated communications and is not based on voice recognition at this point.

"Expert systems," the third category of AI systems under development, are best exemplified by a Stanford University prototype that turns the numerous rules on computer configuration into a production system. The expert system takes the customer's order for the desired computer; having the configuration rules built into it, the expert system then designs the best system for the client; the client can keep the resulting system or revise the order and return it to the expert system for changes.

Such a system is also being used in scientific applications including genetic engineering, Fahlman noted.

Main Event

Jim Justice, senior consultant with Productivity Systems, Inc., an engineering consulting firm specializing in robotics and automation in Farmington, Mich., agreed that right now "a lot of people are working with AI both in universities and private industry." The main event to watch for, he said, is the incorporation of sight into robots.

"Most of this success will be dependent on the software — the robot's ability to massage the data," Justice argued.

While much progress is being made in the integration of solid-state cameras with robotics, it is a slowly evolving development because of the great research and development expense it involves. These advances would enable robots to perform inspection, selection and quality control on manufacturing and production floors, Justice said.

"There won't be any broad-brush advance in AI," he maintained, "because so many different specialized applications and various levels of intelligence" are involved. But Justice predicted that many AI offerings are "just around the corner."

Justice also remarked that the AI breakthroughs are likely to spawn from private companies rather than from academia because "small companies are more motivated . . . maybe its their livelihood," he stated.

The U.S. leads in AI research, and both Fahlman and Justice see no major threat to that leadership from the Japanese. "They may use more robots but they're not developing them," Fahlman said. "The Japanese have not been that agressive in research and development of AI — they lag behind the U.S.," Justice concluded.

Proceedings Out On DP Meet

EUGENE, Ore. — Conference proceedings are now available from a computer conference hosted here last July by the University of Oregon's College of Education.

Entitled "The Computer: Extension of the Human Mind," the conference brought together leaders from the computer and academic communities to discuss the computer revolution and its ramifications for educators in the next few years.

The 236-page, spiral-bound text contains 23 papers presented at the conference's general and special-interest sessions, including speeches given by Jeremy Ross of Radio Shack, Joanne Rudnytsky of Quality Education Designs and Henry Olds Jr. of *Classroom Computing News*.

The proceedings cost $10 and can be obtained from the Eric Clearinghouse on Educational Management, University of Oregon, Eugene, Ore. 97403.

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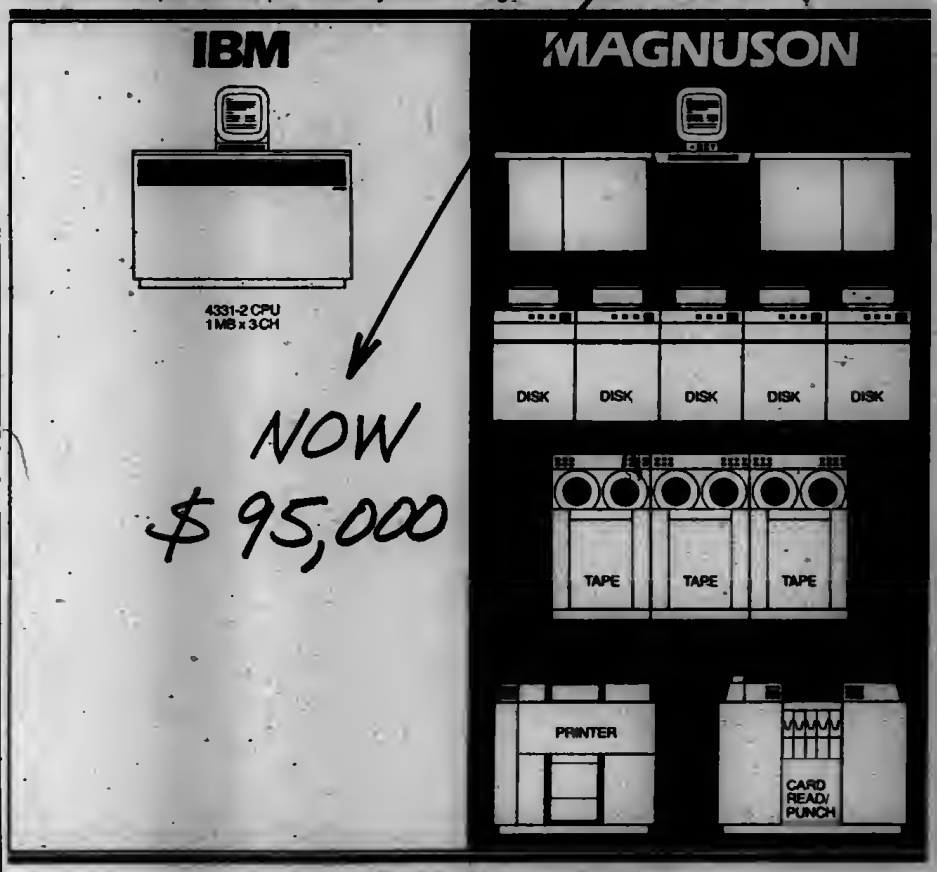

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Cites 40% to 50% Growth Rate

Data Base Directory for 1982 Out

SANTA MONICA, Calif. — The number of data bases that are publicly available through on-line organizations continues to grow at a rate of 40% to 50% per year, according to the fall 1982 *Directory of Online Databases* published by Cuadra Associates, Inc.

The directory lists 1,350 data bases, up from 965 last year. It also lists 213 vendors offering on-line services. These include services offered from non-U.S. sources.

New areas of coverage include a language field, separation of coverage into time span and coverage subgroups, an integrated address listing of producers and on-line services and an integrated master index of company and data base names.

The directory is published quarterly. A one-year subscription includes two editions and two update supplements. It costs $75 from Cuadra, Suite 305, 2001 Wilshire Blvd., Santa Monica, Calif. 90403.

Series Gets Supplement

PENNSAUKEN, N.J. — Auerbach Publishers, Inc. has enhanced its *Computers in Manufacturing* series with a monthly supplemented subscription service.

The company reportedly will publish one supplement/mo for each of its five manufacturing resource planning (MRP) volumes.

These include: *Manufacturing Resource Planning, Master Production Scheduling, Materials Requirements Planning* and *Execution and Control of Systems.*

The fifth volume, *Distribution Management,* is scheduled for publication in the second quarter of 1983.

A company spokesman said the series provides step-by-step guidance on determining MRP, costs and feasibilities, integrating MRP into an existing corporate structure, evaluating hardware and software to support MRP and educating personnel to enhance corporate commitment to MRP.

The first volume in the series costs $150, with each additional volume priced at $100.

All five volumes cost $550, the spokesman said from 6560 N. Park Drive, Pennsauken, N.J. 08109.

Amdahl to Keynote Meet On Dec. 7-9 in Monterey

MONTEREY, Calif. — Dr. Gene Amdahl, chairman of Trilogy Systems Corp. and founder of Amdahl Corp., will be keynoting a Dec. 7-9 conference here entitled "Strategic Issues Conference for the Information Processing Industry."

Sponsored by Infocorp, a research firm based in Cupertino, Calif., the conference will explore ideas on the future of information processing and review major trends in large and small information systems.

William Turner, president of Texas Instruments, Inc., will also address attendees. Registration for this event costs $495 for Infocorp clients and $695 for others. Infocorp can be reached at 20395 Pacifica Drive, Cupertino, Calif. 95014.

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Week of Nov. 14

Nov. 15-19, Tucson, Ariz. — **The 20th Annual Reliability Engineering and Management Institute.** Contact: Dr. Dimitri Kececioglu, P.E., Aerospace and Mechanical Engineering Department, University of Arizona, Building 16, Room 200B, Tucson, Ariz. 85721.

Nov. 15-19, Sunnyvale, Calif. — **Work Load Analysis and Forecasting.** Contact: Registrar's Office, Institute for Software Engineering, 510 Oakmead Pkwy., Sunnyvale, Calif. 94086.

Nov. 15-19, New Orleans — **Establishing Computer Configuration Capacity.** Contact: Registrar's Office, Institute for Software Engineering, 510 Oakmead Pkwy., Sunnyvale, Calif. 94086.

Nov. 16, Dallas — **Writing User Manuals That Sell.** Contact: Michele Keplinger, Promptdoc, Inc., 833 W. Colorado Ave., Colorado Springs, Colo. 80905.

Nov. 16, Los Angeles — **The Focus Intensive for Computer Professionals.** Contact: Kristina Betrus, Tacs, 15910 Ventura Blvd., Encino, Calif. 91436.

Nov. 16-17, Worcester, Mass. — **What Data Processing Can Do for Your Organization.** Contact: Elaine McCormack, Central New England College, 768 Main St., Worcester, Mass. 01610.

Nov. 16-17, Chicago — **Software Engineering.** Contact: Registrar, Battelle Seminars and Studies Program, 4000 N.E. 41st St., Seattle, Wash. 98105.

Nov. 16-17, Los Angeles — **Structured Documentation.** Contact: Institute for Advanced Technology, 6003 Executive Blvd., Rockville, Md. 20852.

Nov. 16-17, New York — **Computer Services and Software Conference.** Contact: E.F. Hutton & Co., Equity Research Department, One State St. Plaza, New York, N.Y. 10004.

Nov. 16-18, Battle Creek, Mich. — **Dids Users Conference III.** Contact: W.M. Collins, Defense Logistics Services Center, Battle Creek, Mich. 49016.

Nov. 16-19, Fort Lauderdale, Fla. — **Airline Maintenance and Material Information Systems.** Contact: L. Sanclemente, ADI Transportation Systems, 150 Crossways Park W., Woodbury, N.Y. 11797.

Nov. 16-19, Washington, D.C. — **IMS/VS Application Development Facility.** Contact: Data Base Management, Inc., 281 Hartford Tnpk., Vernon, Conn. 06066.

Nov. 17, Boston — **Executives On-Line DSS Seminar.** Contact: Rand Macksamie, Comshare, Inc., 60 William St., Wellesley, Mass. 02181.

Nov. 17-18, New York — **Integrated PBX Systems: Changing PBX Strategies for the 1980s.** Contact: Probe Research, Inc., P.O. Box 590, Morristown, N.J. 07960.

Nov. 17-18, Chicago — **Microcomputer Instructional Design.** Contact: Adrian Cammelot, Bell & Howell Co., 7100 McCormick Road, Chicago, Ill. 60645.

Nov. 17-19, Honolulu — **Capacity Management Forum.** Contact: Registrar's Office, Institute for Software Engineering, 510 Oakmead Pkwy., Sunnyvale, Calif. 94086.

Nov. 17-19, Washington, D.C. — **Introduction to SAS.** Contact: Registrar, Applied Technology Associates, Inc., Suite 1418, 1710 Goodridge Drive, McLean, Va. 22102.

Nov. 17-19, Washington, D.C. — **Local Networks: Designing and Implementing Applications for the '80s.** Contact: U.S. Professional Development Institute, 12611 Davan Drive, Silver Spring, Md. 20904.

(Continued on Page 30)

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(Continued from Page 29)

Nov. 17-19, Boston — **Vsam Performance Workshop.** Contact: Tom Evslin, Solutions, Inc., P.O. Box 989, Montpelier, Vt. 05602.

Nov. 17-19, Miami — **Information Systems Conference.** Contact: Steve Dorner, American Gas Association, 1515 Wilson Blvd., Arlington, Va. 22209.

Nov. 17-19, San Jose, Calif. — **Network Protocols.** Contact: American Institute for Professional Education, Carnegie Building, 100 Kings Road, Madison, N.J. 07940.

Nov. 18, Chicago — **Writing User Manuals That Sell.** Contact: Michele Keplinger, Promptdoc, Inc., 833 W. Colorado Ave., Colorado Springs, Colo. 80905.

Nov. 18-19, Worcester, Mass. — **Essentials of Data Processing for the Office Support Staff.** Contact: Elaine McCormack, Central New England College, 768 Main St., Worcester, Mass. 01610.

Nov. 18-19, San Francisco — **Intellectual Property Rights in High-Technology Products and in Sensitive Business Information: Creation, Protection & Enforcement.** Contact: Law & Business, Inc., 757 Third Ave., New York, N.Y. 10017.

Nov. 18-19, Los Angeles — **Office Automation: A Management Focus to Improve Productivity.** Contact. Data Communications, P.O. Box 466, Allendale, N.J. 07401.

Nov. 18-21, San Francisco — **Apple Fest.** Contact: Northeast Expositions, 822 Boylston St., Chestnut Hill, Mass. 02167.

Week of Nov. 21

Nov. 22-Dec. 4, Summit, N.J. — **ANS Cobol.** Contact: Chub Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901

Nov. 25-26, Paris — **Computer Fraud and Security: Tools for the Reliable Data Processing.** Contact: Office de Recherche d'Organisation et de Securite, 42 Blvd. Pasteur, 705015 Paris, France.

Nov. 27-28, New York — **CICS Command Level Intensive.** Contact: David Shapiro, Sys-Ed, One Park Ave., New York, N.Y. 10016.

Week of Nov. 28

Nov. 29-Dec. 2, Miami — **Communications — A Synergistic Technology.** Contact: Dr. Liang Li, Gould S.E.L., 6901 W. Sunrise Blvd., P.O. Box 9148, Fort Lauderdale, Fla. 33310.

Nov. 29-Dec. 3, New York — **CICS Internal Architecture.** Contact: David Shapiro, Sys-Ed, One Park Ave., New York, N.Y. 10016.

Nov. 30-Dec. 1, Chicago — **Management Strategies and Controls for Information Resources.** Contact: Performance Development Corp., 1101 State Road, Building N, Princeton, N.J. 08540.

Nov. 30-Dec. 2, New York — **Job Control Language.** Contact: Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901.

Dec. 1, Cambridge, Mass. — **Introductory Seminar on Information Engineering.** Contact: Information Methods (USA) Corp., 504 Totten Pond Road, Waltham, Mass. 02154.

Dec. 1-3, Chicago — **Data Communications Network Design & Optimization.** Contact: Registrar, Institute for Advanced Technology, 6003 Executive Blvd., Rockville, Md. 20852.

Dec. 1-3, Washington, D.C. — **Structured Testing.** Contact: Registrar, Institute for Advanced Technology, 6003 Executive Blvd., Rockville, Md. 20852.

Dec. 1-3, Rosslyn, Va. — **Introduction to Unix — Hands-On Workshop.** Contact: Institute for Advanced Professional Studies, 55 Wheeler St., Cambridge, Mass. 02138.

Dec. 1-3, Philadelphia — **Conflict Resolution in the Data Processing Environment.** Contact: Q.E.D. Information Sciences, Inc., P.O. Box 181, 180 Linden St., Wellesley, Mass. 02181.

Dec. 1-3, Atlanta — **Data Communications.** Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020.

Dec. 2-3, Chicago — **Selecting and Planning Data Base Projects.** Contact: Performance Development Corp., 1101 State Road, Building N, Princeton, N.J. 08540.

Dec. 2-4, Miami — **International Foundation of Employee Benefit Plans' (IFEBP) 1982 EDP Institute.** Contact: International Foundation of Employee Benefit Plans, 18700 W. Bluemound Road, P.O. Box 69, Brookfield, Wis. 53005.

Week of Dec. 6

Dec. 6, Culver City, Calif. — **Using Microcomputer Software for Decision Support: Seminar for Managers.** Contact: Sally Brissenden, Addison-Wesley Publishing Co., Reading, Mass. 01867.

Dec. 6-8, San Francisco — **Controlling & Auditing On-Line and Distributed Systems.** Contact: Marge Cohen, Registrar, MIS Training Institute, Inc., 4 Brewster Road, Framingham, Mass. 01701.

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EDITORIAL

Is the Link Already There?

A number of vendors have come forward to respond to last week's front-page article "Micro-CPU Link Eluding DPers" [CW, Nov. 8].

The general feeling is that they already provide the microcomputer-CPU links that the DP managers contacted by *Computerworld* said are not yet available. The curious thing is that none of the vendors' names was mentioned by the DP managers interviewed for the article.

One problem may be marketing. Perhaps these firms are relatively new or their products are fairly recent, so they have not yet had time to make a strong push to foster name recognition. As this develops, it may be that DP managers will become more familiar with their offerings and, in fact, will begin installing them to link microcomputers to their corporate mainframes.

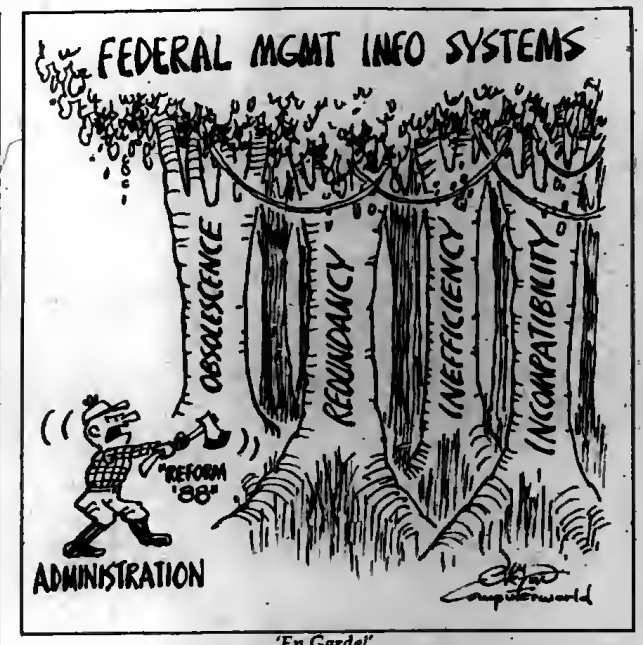
However, from the responses of the DP managers surveyed for the article, it seems these vendors face a deeper problem. The DP managers emphasized their search for a "total solution." They are generally IBM mainframe shops with a recent infusion of IBM Personal Computers or Apple Computer, Inc. Apple II microcomputers. What they want is something that will cleanly link these types of systems, as well as other types of systems, such as word processing.

These users do not want to buy different products to handle various segments of the job. Each wants to write one check and buy one product and have it work for him with little customization.

One gets the impression that with all of the other headaches that make up the juggling act referred to as MIS management, the last thing a manager needs to add to his problems is a tricky communications link between micros and mainframes. After all, in many cases the micros are being brought into a firm against the wishes of the DP department.

DP managers are struggling to maintain control over the corporate data resources in the face of increasing numbers of microcomputers in the hands of end users. It seems a lot to ask these people also to work on building links into the corporate mainframes.

Perhaps some large mainframe-oriented shops already have found the "total solution" to their needs in terms of micro-mainframe links. Some of the vendors of these products have suggested this is the case. All we can say is there are a lot of DP managers out there who certainly would love to hear about them.



'En Garde!'

DATA PAST

Five Years Ago
Nov. 14, 1977

NEW YORK — An IBM attorney admitted as early as 1963 that the firm maintained an "almost unchallenged monopoly position" in the DP industry, an internal company memo placed into evidence in the U.S. vs. IBM antitrust trial here said.

Other introduced documents indicated IBM chose to unbundle its software and services prices from the hardware prices of its systems not only because of antitrust considerations, but also to control the growth of rival leasing companies.

The documents were part of a group that IBM had been trying to keep out of the public record in the case for the past nine years.

Ten Years Ago
Nov. 15, 1972

WASHINGTON, D.C. — The American National Standards Institute (Ansi) technical committee X3L2 proposed several revisions in the Ascii character set and functions and the public comment period on the proposed changes with the committee's own balloting period.

The consideration of the revision also coincided with the start of the National Bureau of Standards' study of the impact of Ascii as a federal standard.

The revision in effect acknowledged suggestions that were made to the National Bureau of Standards that Ascii should be defined as an 8-bit code.

LETTERS

Getting Off Mailing List

Jack Stone's article "Closing the Door to Computerized Junk Mail" [CW, Nov. 1] mentions one way of getting off fund-raising mailing lists, namely, writing to publishers and requesting that your name not be used for other mailings. A broader approach is to write to the Direct Mail Marketing Association, Mail Preference Service, 6 E. 43rd St., New York, N.Y. 10017 and ask that your name be added to the Name Removal file.

There are, at the same time, many people who are interested in causes that solicit through the mail. Stone's example of the senatorial candidate who raised 3½ times his solicitation costs is an example of cost-effective fund raising.

In many cases, the "swapped, bartered and rented" mailing list is the least costly way to communicate a need for funds to concerned people who are in a wide geographic area. Most fund raisers recognize that there are additional savings by not mailing to people who are not interested and will gladly omit requestors from mailings. This can be accomplished quite accurately by the computers that Stone took to task.

Robert F. Bonner
Vice-President
Fenvessy Associates, Inc.
New York, N.Y.

Problem Is in Message

For years I have read Jack Stone's column with admiration for his ability to address the "gut" issues of our profession.

However, after reading "Closing the Door to Computerized Junk Mail" [CW, Nov. 1], I am convinced that he has shot the messenger when the problem is clearly in the message.

The "list junkies" are massaging their customer files just as any other businessman would. The people on these lists classified themselves when they came into public with their contributions and/or purchases.

Most reputable direct-response companies permit the persons on their lists the option of having their names sold.

By using sophisticated mathematics, we are mailing far less than we used to in order to produce profitable results.

Concerning the "truth benders," I agree. They should be sought out and convicted. We do have extensive "truth-in-advertising" laws.

The problem Stone describes is no different from that of TV commercials. Why should I, as a male, have to sit through commercials selling intimate feminine products? Isn't that an invasion of my privacy also? It is definitely unsolicited.

So the problem is not the media; it is clearly the message, and we had better do something about enforcing the truth contained in the message. Mail-order fraud is enforceable. At the same time, we in the industry must do a better job of informing the people on our lists of their rights.

Darrell Dewey
Director of Market Analysis
Garden Way Marketing Analysis
Troy, N.Y.

What's a 'Real' Analyst?

After reading Jean Tricebock's "'Real Programmers' Don't Eat From Vending Machines" [CW, Nov. 1], I noticed that Tricebock isn't a programmer at all, but a systems analyst.

I wouldn't admit to being a Real Programmer either — but Jean, what is a *Real* Systems Analyst?

Dale Brandser
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THE DATA CENTER /John P. Murray‡

PR Campaign Can Boost Client Relationship

Is the service provided by your data center better than the data center clients seem to believe? While there are many poorly run data centers and they deserve the ill will of their clients, which they usually have to endure, there are also a number of well-run data center operations that are not always viewed as doing a good job. This, in the case of well-run data centers, is an unfortunate situation. However, with appropriate effort and attention, this situation can be reversed.

Because of the critical nature of the work performed in the data center, critical in terms of providing essential services that are absolutely necessary for the daily operation of the entire organization, errors or problems that occur in the data center tend to produce a cascading effect within all areas of the organization.

These problems, while often serious, are at times magnified in the view of the data center clients. While this might be viewed as simply a way of data center life, there are approaches that can be used to improve the relationship between the data center and its clients.

One approach that can be used is to introduce a data center public relations campaign. This campaign can be done in a subtle fashion and can still be very effective.

Because of the active nature of the data center environment, it is often easy to allow small items to be overlooked, to become careless about the manner in which questions, problems and complaints are handled. All members of the data center staff should be aware of the continuing need to portray their work and results in the best possible light.

Because both the data center and the data center manager are vulnerable, everything possible must be done to build and maintain good relations with the data center clients. The goodwill generated by members of the data center staff is just as important to the data center as the goodwill generated by the organization with regard to the organization's customers.

'Attitude Is Everything'

In order to carry on a successful data center public relations campaign, several areas should be consistently monitored in order to make certain that everything possible is being done to generate data center goodwill. The most critical aspect is that of attitude. "Attitude is everything," may be a cliche, yet it is a valid cliche.

A cooperative, helpful approach to those outside the data center by members of the data center staff will go a long way toward improving the data center/client environment.

The data center, even the poorly managed data center, is not always at fault. Data center clients do make mistakes; for example, they sometimes do not clearly understand the work being done in their own department. The clients are, indeed, sometimes the cause of the difficulty. However, the natural tendency on the part of people in the data center to react, to point fingers, must be resisted.

Adversary Relationships

It is much more effective to work with uninformed clients, no matter how obtuse they may appear, than to allow an adversary relationship to develop. It must be remembered that the clients represent a larger portion of the organization than management information systems (MIS).

If the organization's senior management senses there is too much friction between MIS and the clients, sooner or later some action will be taken and when taken it is not likely those changes will occur in the client areas.

There is an ancillary benefit to this consideration of the relationship between MIS and clients. The nature of the work done in the data center ensures a situation at some point where, because of a data center error, a serious problem will occur.

This is true of every data center, no matter how well managed. When this happens, if the data center staff has built a good relationship with its clients, the reaction to the problem will be much less harsh, much more understanding, than if the relationship has been allowed to become inimical.

While we tend to overlook the fact, we are constantly selling the data center. This selling occurs either in a positive, active manner or it occurs negatively through carelessness or indifference. There will never be an equilibrium; either one aspect or the other, positive or negative, will always be in operation.

The manner in which we sell the data center, and ourselves, to those we attempt to serve will have a lasting impact not only on the data center effort but, perhaps more importantly, on our careers.

Murray is director of MIS for Ray-O-Vac Corp., Madison, Wis. He is responsible for worldwide MIS activities. Murray has 20 years of DP experience, 10 of which have been devoted to the management of data centers.

HUMAN CONNECTION /Jack Stone‡

No Place for Peter Principle On Ladder of Success

This is the second article in a three-part series on the suitability factor in DP hiring.

A number of large organizations believe that a good manager is a good generalist and can perform well at any assignment after, of course, proper training and indoctrination.

The U.S. military is a case in point. Top management believes that the successful commander of a squadron of fighter aircraft can perform equally well after promotion to a desk job in the Pentagon.

Based on my experience, I don't happen to subscribe to this theory. Neither does A.L. LeDuc, director of computer services planning and analysis, Miami-Dade Community College, who discussed some of his ideas on promotability in a recent letter.

"Recently, I read a novel in which one of the characters found herself 'onsuitable' for a nursing career. I viewed this as a rather unremarkable development until I reflected on the fact that unsuitability is seldom a theme in novels or, for that matter, in real life. The central tendency of character development is to deal with inadequacies or unadaptability, character flaws that cause people to grasp for more than they can retain.

"Unsuitability is a neutral concept and a less interesting notion; however, it is a very real foundation of the career choices of many people. For this reason, unsuitability is the cause of important communications problems between employer and employee and becomes a major source of misunderstanding.

"Some time ago, I worked in an office with three secretaries. The most senior was the office manager who arranged and delegated work to the others. One day she resigned, and because of tradition the job was offered to the next in seniority.

" 'Oh, dear,' she said. 'I'm not suited to that kind of responsibility at all.' And, in truth, she wasn't and didn't take the job. How good for us, I thought at the time, that she knew her limitations.

"In the two examples cited above, the individuals knew quite clearly what their jobs entailed and that they could not handle them. It is mistaken softheartedness to turn away from a conclusion, jointly arrived at by both employee and employer, that an employee is unsuitable for a particular job.

"Many managers, I believe, feel they are stifling a person's ambition when they say that he is unsuitable for a position. Such ambition, though, needs to be tempered with realism. When I talk to people about suitability, I tell them that my ambition is to be a linebacker for the Green Bay Packers. This always

(Continued on Page 34)

READER COMMENTARY /Jean Tricebock‡

'Real Analysts' Don't Lose Sleep Over Walk-Throughs

The person who was once a Real Programmer and is now struggling to become a Real Analyst has a difficult transition to make. Like it or not, he must organize and plan projects, attempting to please such diverse groups as operations, programming and users. He's probably already noticed that yelling at a programmer elicits a response he never experienced when cursing a terminal.

If he's been an analyst since the days when his work was mysterious and his word was law, the analyst needs new guidance now. In this age of structured walk-throughs, standards manuals and tech bulletins, how is an analyst to cope?

Guidance is here. The suggestions below should help the systems analyst get his act together — and they are listed in unstructured format:

- Real Analysts speak English.
- Real Analysts have read at least one Yourdon book (with which they did not fully agree).
- Real Analysts are not baffled by complex equipment, such as the copier or telephone.
- Real Analysts do not lose sleep before a walk-through.
- Real Analysts say "I don't know" when they don't.
- Real Analysts understand the more exotic Cobol verbs, but cannot get a simple WRITE statement to work.
- Real Analysts write in English.
- Real Analysts know who does what in operations.
- Real Analysts do not read code.
- Real Analysts always leave the user smiling.
- Real Analysts know what they are doing.
- Real Analysts know each of the unique names by which operations, programming, users and management refer to the same system.
- Real Analysts lack facility with TSS commands.
- Real Analysts can maintain a cooperative relationship with quality assurance.
- Real Analysts can install a software package without psychiatric treatment for hostility and anxiety.
- Real Analysts are not intimidated by contractors.
- Real Analysts can attend a meeting of the Technical Standards Committee and still work the rest of the day.
- Real Analysts don't work on weekends.
- Real Analysts can't write JCL.
- Real Analysts don't tell war stories about the good old days...
- Real Analysts are kind to programmers.
- Real Analysts dress for success when they have a walk-through.
- Real Analysts read books like *Effective Listening and Communication Skills.*

Tricebock is a systems analyst.

LETTERS

Invest in DP Graduates

As a recent graduate of one of the major DP vocational schools on the West Coast, I cannot help but be disappointed with some of the shortsightedness I have seen in this profession.

I am referring to the statistics that show the great demand, both present and future, for programmers and operators. The computer industry complains of the shortage of experienced, qualified personnel, while eager, capable and very trainable graduates are scratching for an opportunity.

The "Catch-22" situation of "get a job to gain experience and have experience to gain a job" has set into our industry. Unfortunately, this can stifle the potential professional growth DP can and will provide. The present and future of our industry lies in the utilization of new and fresh resources. These resources usually come in the form of hardware, software and manpower. Do not forget that the first two elements are born from the third.

The best solution to the DP personnel problem is to stop the head scratching and start benefiting from the pool of graduates looking for that first opportunity. Most companies require employees with growth potential within their organizations. This is what separates the long-term, successful companies from the rest. It is these organizations that will perpetuate either the stagnation or the development of the DP field.

Let's not get caught in the shortsighted rut many of our country's industries are in today. Profit by investing in the graduates of our educational system.

Mark Engel
Costa Mesa, Calif.

'Entry-Level' Syndrome

Every week someone publishes another article citing countless surveys, facts and figures on the lack of competent people to fill the vast number of anticipated and current openings in data processing, specifically programmers. Statistics show we will fall hundreds of thousands short in the next 10 years.

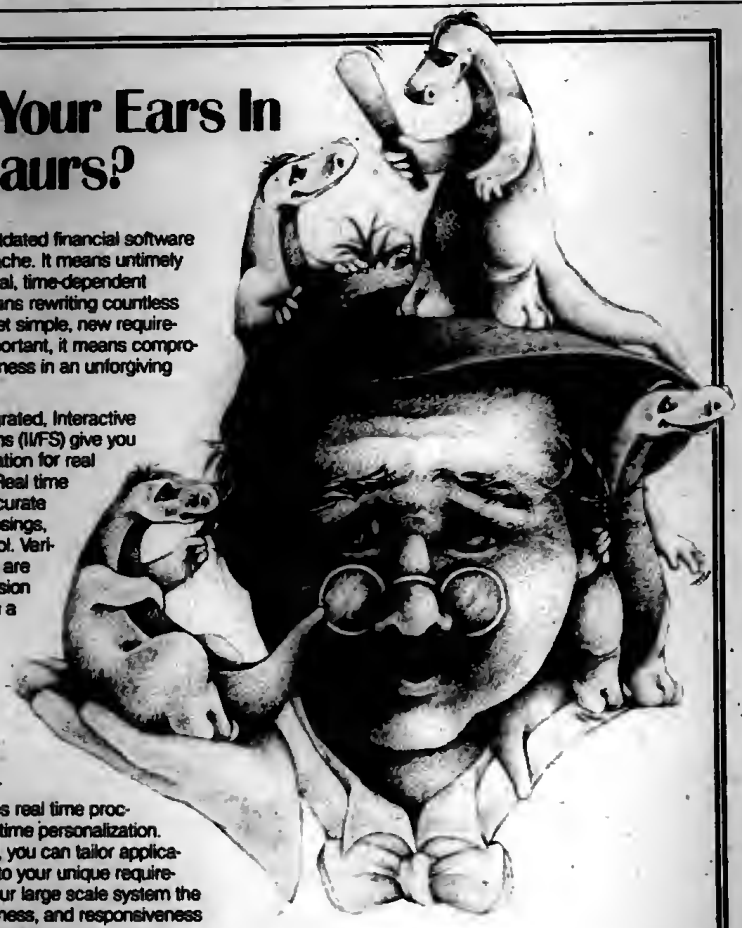
I am acquainted with well over 20 people who are very competent programmers. Each has done a wide variety of business applications programming in languages that include Cobol, BAL and PL/I, to name just a few. All have worked with large IBM mainframes and some with micros and have the strong drive and ambition necessary to achieve results in today's DP world.

So what's the catch you ask? Well, there is a catch. Each and every one of these poor souls is afflicted with a severely crippling disease, namely, the "entry level" syndrome: that much-feared crippler of careers that causes DP managers to turn the other cheek and personnel people to terminate interviews politely but swiftly.

Apparently, these people do not realize the disease is not contagious. In fact, with proper treatment (opportunity), the symptoms have been known to vanish in as little as one month. Imagine that! One month away from being a productive member of your staff.

Philip R. Murphy
Arlington, Mass.

Up To Your Ears In Dinosaurs?



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Peter Principle Not Best Course

(Continued from Page 33)

draws a chuckle because I am clearly too short, pudgy, old and slow for this to be a realistic ambition, and it makes the point well. The fundamental truth is that many ambitions in the real world are equally unsuitable.

"Lawrence Peter, in formulating the so-called *Peter Principle*, tried to distill the concept of hierarchical suitability into this well-known aphorism: Individuals are promoted to the level of their incompetence. Alternatively stated, someone may be perfectly suited to a particular slot and then be promoted to one for which he does a terrible job.

"Strange, but our career field seems to attract people who doggedly persevere in their positions in spite of their unsuitability. The worst programmer I ever met had been a happy chicken farmer until he decided to use his education and join my organization. He became the master of the incorrect test and the colossal blunder. About the time he took refuge in drugs from the increasing work tension, he was laid off. How much better off all of us would have been if someone had recognized his basic unfitness for the job right in the beginning. This person was not stupid or of worthless character or unqualified — he was just unsuitable."

LETTERS

Why the Same TTR?

The partitioned data sets (PDS) overlay problem discussed in "PDS Problems Hit" [CW, Oct. 4] is characterized by two member entries in the PDS directory having the same TTR pointer. The problem has occurred because one member is written at a given TTR, then a subsequent member is written using the same TTR, overlaying the first member. The question is when and why the same TTR is used.

The stock IBM explanation is that when several tasks are allowed to update the PDS at the same time, the problem can be expected to occur. To circumvent this, it is suggested that the customer ensure the serialization of PDS updating. The suggestion is to force serialization by requiring a disposition Old on all updates.

This will undoubtedly "solve" the problem, but it also means that no other task can access/the PDS — even for input — for the duration of the update.

In most installations, this has a severe impact on throughput. It should also be noted that TSO/Structured Programming Facility (SPF) allocates a PDS with shared disposition, but does enqueue against updating a PDS from different TSO/SPF sessions.

In checking into this problem through the IBM Support Center, Level 2 support for OPEN/CLOSE/EOV (OCE-L2) stated that PTF UZ37299 (PUT tape 8107) had opened an exposure that could cause the PDS overlay problem. They reported that the change team was working on it, but were unable to provide an Authorized Program Analysis Report (Apar) number (they did mention OZ44857, but it is closed and from September 1980).

The exposure, according to OCE-L2, could cause a problem when one task has the PDS open for output or update with disposition Share (for example, TSO/SPF) and another task has the PDS open for input with disposition Share.

The expanded exposure that UZ37299 (Apar OZ52996) presents is essentially the same as the SU60 exposure. Basically, the Format 1 data set control block (F1DSCB) has fields that are updated at OPEN (input, output, update and so on) time. One of these fields is the date last referenced field (DS1REF). UZ37299 removed a bypass to updating of this field.

The theory is that at OPEN time the DS1REF field of the F1DSCB may be updated. If a PDS update is being processed and updates the DSILSTAR (last user TTR) between the time OPEN reads the F1DSCB and rewrites it to update the DS1REF, then the next update to the PDS will use the same TTR as the first update.

In theory, the DS1REF field will only be updated on the first OPEN of the day. In fact, a number of products update a number of fields in the F1DSCB at OPEN time.

The PDS overlay problem would appear to be caused by the F1DSCB being used to keep both data set statistics and pointers into the data set. The data set statistics are read and written at OPEN. The pointer for last-used TTR is read at OPEN for output and written at CLOSE. Since these are not coordinated, therefore, the DS1LSTAR filed can be overlaid.

Customers may be able to protect their PDS by requiring their users to specify exclusive control (disposition Old) when updating a PDS, as recommended by IBM.

In order to protect their PDS, customers will have to gain the cooperation of their users in frustrating exercise. In the real world, it is unacceptable to ask users to restrict themselves voluntarily because IBM products jeopardize the integrity of certain types of data sets.

Clearly, for many customers there are some serious integrity, performance and productivity considerations. Let's hope IBM will recognize that its customers are experiencing very real problems. It is time for IBM to give its customers a realistic solution.

Hugh C. Scott
Senior System
Software Specialist
Commercial Union
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Boston, Mass.

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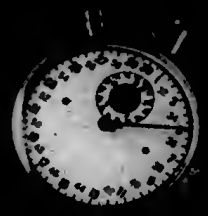

DBA's Role Changing as Package Use Rises

By Anne Proia
Special to CW‡

As manufacturers increase their use of packaged software, the roles played by their data base administrators (DBA) become quite different from the roles they played when their companies developed all their application systems internally.

'The role of the DBA will continue to change as computer-aided design and manufacturing, computer controlled factory operation, robotics and distributed data processing join manufacturing and financial systems as components in a company's total information system.'

The desire for a single manufacturing system that can be used to improve the operating efficiency of many divisions in a single conglomerate has created a role for DBAs that requires them to shoulder the responsibility for integrating software systems for multiple, geographically dispersed companies.

The increasing use of packaged software is also causing the sudden appearance of the need for a DBA in companies where there were previously no computers, software or data bases.

DBAs have traditionally devoted their efforts to gathering and defining data elements and then spending months — sometimes years — in producing a documented nonredundant list of them. Data elements were then grouped and regrouped into tuples, records and relationships so that they could support the large in-house development projects that would grind out the company's applications software.

Because initial applications development efforts are frequently only allowed to automate existing procedures, instead of providing improved procedures, DBAs frequently must devote the bulk of their efforts to the maintenance work required by continuing development. When companies choose to develop software internally, it is simply easier for DBAs to slip into systems programmer/maintenance programmer roles than it is for them to maintain momentum toward creating integrated information systems.

Packaged software has been extremely successful in providing manufacturers with a fast and painless (from a software standpoint, at least) method of implementing vastly improved methods and procedures for planning and controlling manufacturing operations. Without packaged software, achieving a true MRP II environment is most likely only a misty dream.

Packaged software is implemented most successfully when the software is well documented, maintained by the vendor at a state-of-the-art level, technically well implemented, supported in a data base/data communications environment and based on sound application principles that deliver the improvements desired by the users.

When the DBA is called on to help implement quality packaged software, it becomes possible to emphasize DBA

(Continued on Page 40)

Supports MVS/XA Capabilities

Future Releases CICS Productivity Tool

SALT LAKE CITY, Utah — Future Software, Inc. has introduced an IBM CICS productivity tool designed to support the 31-bit addressing and extended virtual storage capabilities of IBM's MVS/XA operating system.

Intended for use on IBM and plug-compatible 370 or 4300 systems with at least 1M byte of main memory and for IBM 3270 display stations, Software Generation Technology (SGT) runs under DOS/VS(E), OS/VS1/MVS and requires VS/Vsam and CICS/VS Release 1.5 or higher.

The core of SGT consists of a set of interacting components, including a set of intelligent editor/compilers, the SGT language, runtime facilities, system utilities, a security system and an on-line user guide and training materials, the vendor said. Application programs are generated and executed using these central facilities.

According to the vendor, SGT runs as an application program under CICS and does not modify CICS or the operating system. SGT users reportedly do not need to understand CICS, JCL or other programming languages. SGT is written in command level to enable it to utilize the full capability of IBM's new CICS/OS/VS Release (1.6), the vendor added, noting that this includes addressing 1024M bytes vs only 16M bytes with earlier CICS releases.

The intelligent editor/compilers are used to define files, records and working storage layouts, edit masks, dynamic display maps, program logic and on-line user-written documentation, the vendor said. They reportedly edit and compile programs and detect errors as instructions are entered.

The SGT interactive language is said to support all SGT system components. The vendor noted that the runtime facilities provide error diagnostics and recover from abends and exceptions.

The SGT system utilities include a directory, a map modeler, a command builder, a print member and a calligrapher, the vendor explained. The SGT security system, which is independent of CICS, is said to control user access by user name, program, file, field or lines of a program.

The package supports interactive color graphics by calling IBM's graphics subroutines without compiling or link editing, the vendor said. In addition, the program logic can be changed interactively to produce a new graph.

Perpetual lease charges for the SGT software, including maintenance, are $28,000 for the OS version of the SGT Basic Package, $23,000 for the DOS version of the SGT Basic Package, $2,000 for the Command Builder Utility and $5,000 for Interactive Color Graphics. The software also is available on an annual or monthly lease basis. Further information can be obtained by contacting Future Software, Inc., Suite 203, 530 E. 500 South, Salt Lake City, Utah 84102.

'Express' DSS Prices Cut By More than 50%

WALTHAM, Mass. — Management Decision Systems, Inc. has slashed the price of the base system for its Express decision support system (DSS) by more than 50% as part of an attempt to make the product available to a wider audience.

The base system for Express now is priced at $50,000 rather than $130,000. A complete Express package, including all components, can be purchased for approximately $135,000, compared with the previous price of over $220,000.

The company also announced that these fees could be reduced another 33% for a simultaneous user system — where a company wants only a few users to have access to the system, rather than requiring companywide application of Express.

The $50,000 base Express system price includes several new options, the vendor noted. These are multidimensional data base management, central data dictionary maintenance facilities, consolidations and editing, an interactive data manipulation library, customized command capabilities and modeling, prompted data entry and interactive analysis and output capabilities.

The $135,000 full-system price includes a report generator, graphics, a display command set, a data reader, enhanced financial reporting features, preprogrammed financial functions and Planmod, a financial line item modeling system that includes goal seeking and simultaneous equations, the vendor said.

Management Decisions Systems is located at 200 Fifth Ave., Waltham, Mass. 02254.

Cobol Development Aid Out, Supports Ansi Cobol 68 or 74

MINNEAPOLIS — A Cobol program development tool from Sartoris, Inc. is said to be available on virtually any computer with a Cobol compiler. Known as Improve, it is operational in all major vendor computer environments, according to Sartoris.

Supporting either Ansi Cobol 68 or Ansi Cobol 74, Improve reportedly processes both sequential and keyed I/O files, accesses any data base management systems and provides for simultaneous processing and automatic matching of up to nine input files.

Other features of the software are report sequencing, column headings, field formatting, automatic totaling at user-specified breaks and up to nine separately formatted detail print lines on each report.

Improve costs $20,000, including installation and training, a spokesman said from 7420 Unity Ave. N., Minneapolis, Minn. 55443.

Guide Expanded For IMS, DL/1

FORT LEE, N.J. — On-Line Software International (OSI) has expanded its "IMS/VS & DL/1 DOS/VS Reference Handbook."

The pocket-size guide contains data from various manuals on IMS/VS for OS shops and DL/1 for DOS shops. Updated to include Release 1.2 and DL/1 DOS/VS 1.6, the manual offers illustrated data base rules, application debugging aids and information on the IBM 3270.

OSI also announced the third printing of its "CICS/VS Reference Handbook," which includes documentation for CICS/VS Release 1.5.

Each booklet costs $35 from OSI, Fort Lee Executive Park, Two Executive Drive, Fort Lee, N.J. 07024.

Enhanced 'Aces' Out; Price Cut

NEW YORK — Woodward, Ryan, Sharp and Davis, Inc. has announced an enhanced version of its Automated Claims Entry System (Aces) for health care institutions, which it is offering at a 40% discount for a limited time.

Aces runs on IBM and plug-compatible mainframes under OS and DOS. Its on-line enhancements include correspondence capability, maintenance-of-plan benefits and their rules, claims calculation and display under both single and multiple plans, monitoring and resolution of pending or prior approved claims and storage-of-claims histories.

Off-line, Aces is said to perform reporting and analysis functions to support cost-containment programs, productivity measurement and benefits utilization and reserve determinations. Through April 30, Aces will cost $150,000; plus $15,000 for functional specifications. The price includes installation, software, training, documentation and support. After April 30, the cost will be $280,000, a spokesman said from 3 Park Ave., New York, N.Y. 10016.

Role of DBA Expanding With Package Use

(Continued from Page 39)

functions other than maintenance. A packaged system that is well implemented technically will allow a company to move quickly to a high-volume production environment. In such an environment, the DBA's role is to "tune" the data base, a task critically important to maintaining acceptable on-line response time.

When packaged software serves as the workhorse for routine functions, the ability to extract the information needed to integrate all of a company's internal systems improves. Here the DBA can, through the use of a common data dictionary, define for the company's internally developed systems the data maintained by the packaged manufacturing and financial systems.

Packaged software emphasizes providing users with easy-to-use report writers and on-line query features. In this environment, the DBA must function more as a coordinator and less as a technician. Because packaged software makes possible the rapid development of on-line networks, the DBA must take a more active role in defining computer and telecommunications requirements.

Packaged software will continue to play an increasingly important role in corporate information systems. And the role of the DBA will continue to change as computer-aided design and manufacturing, computer controlled factory operation, robotics and distributed data processing join manufacturing and financial systems as components in a company's total information system. As this occurs, the DBA will be required not only to integrate software systems from different vendors, but also to integrate systems that run on different computers. The DBA's job will require an ever higher level of coordination.

While the role of the DBA is changing, it is also improving. Though DBAs still face a high level of frustration in their work, it is the kind of frustration that comes from trying to coordinate developments in a rapidly changing environment; it is not the frustration that comes from the inability to make progress.

Proia is a technical consultant from Comsero Corp. in Mendota Heights, Minn. She specializes in consulting in the data base/data communications area.

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'I Think We've Sprung a Leak!'

Security Software System Targets Intel System 2000

AUSTIN, Texas — A security software system designed for use with the Intel Corp. System 2000 data base management system (DBMS) has been announced by Acts Corp.

The Access Control Facility prevents unauthorized data base access for both the multiuser and single-user versions of DBMS running under IBM's OS and VM/CMS operating systems, according to an Acts spokesman.

The system will alert the console operator or a designated TSO operator immediately each time a security violation occurs and was designed to complement the security controls for other security systems, like IBM's Resource Access Control Facility and Boole & Babbage, Inc.'s Secure/CICS, the spokesman claimed.

Access Control Facility is priced at $4,500 from Acts, 11910 Gate Way, Austin, Texas 78759.

Invoice Tool, 'Netman 2.0' Out For IBM CPUs

SANTA MONICA, Calif. — California Software, Inc. has announced the availability of both the Netman Invoice Manager and Netman Release 2.0. They run on IBM mainframes and plug-compatibles under IBM's MVS and DOS operating systems.

The Netman Invoice Manager is an on-line tool for data processing invoice verification and analysis. It reportedly permits future price changes, adjustments, installation, rental, lease, purchase, maintenance, tax, miscellaneous other charges and invoice status review. It is priced at $5,000.

Netman 2.0 is a data center and data communications management system that reportedly provides a centralized data base for all hardware and software information, the vendor said. It furnishes data detailing components, configuration, orders, financial attributes, vendors, problem tracking and history, vendor performance and change management, according to the vendor.

Further details are available from California Software at Suite 304, 1460 Fourth St., Santa Monica, Calif. 90401.

Newsletter Net Gets Monitor

BRYN MAWR, Pa. — Newsnet, Inc. has announced an enhancement to its electronic newsletter publishing service.

Called Newsflash, the service monitors additions to the Newsnet keyword-driven data base of current and back issues of nearly 100 business-oriented newsletters, the company said. Newsflash monitors all Newsnet additions for any references to user-specified keywords and automatically delivers them on-line to users.

To initiate Newsflash service, users create an interest profile of up to 10 keyword phrases, a spokesman said. The Newsnet computer can be ordered to monitor a specific newsletter, a specific industry or the entire Newsnet data base. Newsflash can notify users of a keyword "match" on-line or by outcall. The outcall option sends the full text of the article to a special Newsnet teleprinter.

Newsflash costs $5/mo for each keyword phrase created as a continual search command, the company said. When a match is found, regular connect time costs 40 cent/min. Newsnet is located at 945 Haverford Road, Bryn Mawr, Pa. 10910.

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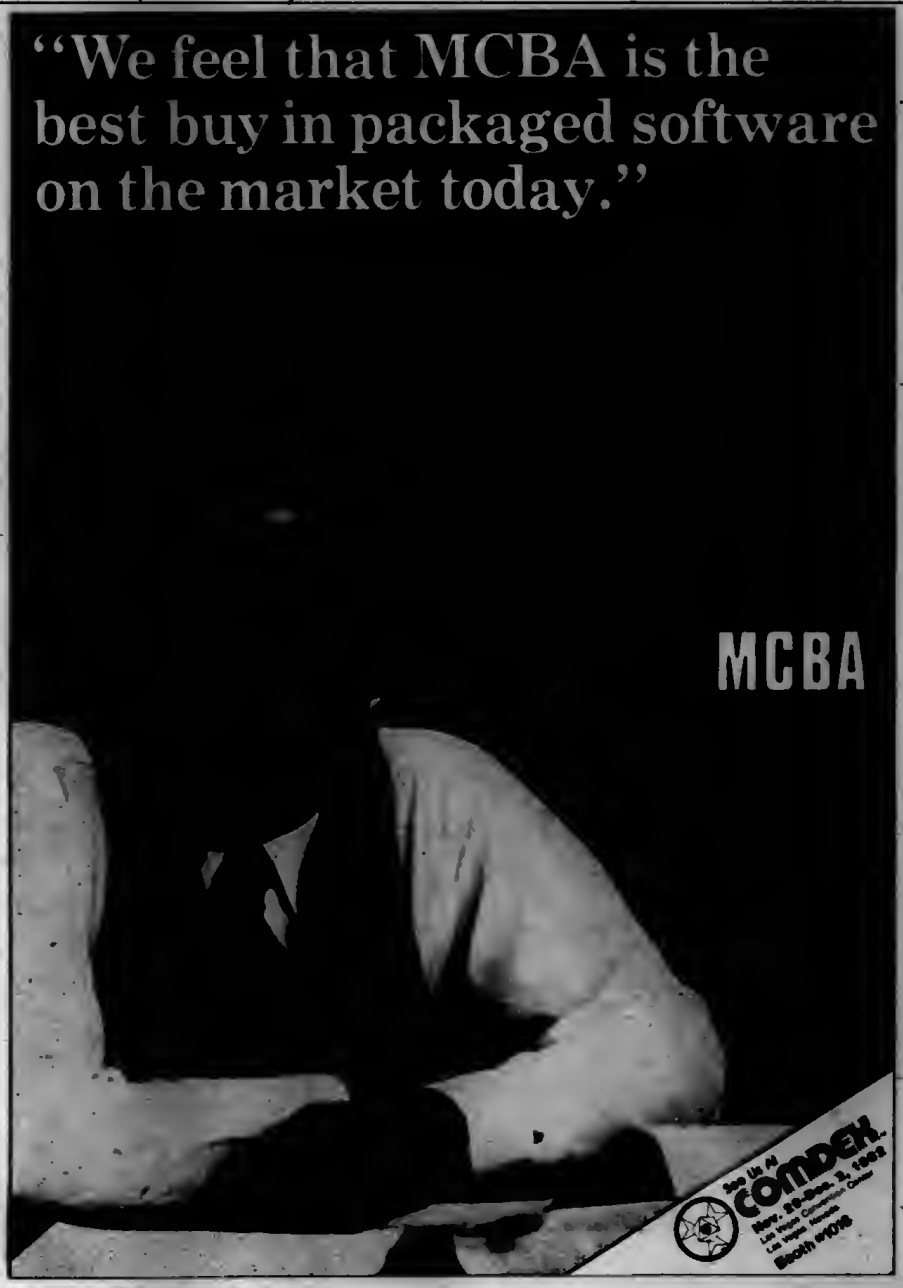

'Incontrol' Supports Users Of IBM 4300 Running CICS

TORONTO — Insystems, Inc. has announced an application development aid for IBM 4300 series users running CICS-based application systems.

Called Incontrol, the utility reportedly allows the development of a prototype system during the design phase of a project. Incontrol automatically produces BMS source code and other types of repetitive code, the vendor reported.

The package is comprised of an application design component, including screen builder, map generator and support facilities and an application control structure, including application program generator, transaction framework and support facilities, the vendor said.

Incontrol costs $17,500 through Dec. 31 and $25,000 thereafter, the apokesman said from Suite 906, 45 Richmond St. W., Toronto, Ont., Canada M5H 1Z2.

'Dtaprint' Aims At CICS Users

MINNEAPOLIS — Davis, Thomas & Associates, Inc. has announced a utility that it claims offers IBM CICS users an alternative to IBM'a Power/Remote Job Entry facility.

Called Dtaprint, the utility reportedly provides the capability to print reports from a Power/VSE list queue to printers within a CICS network. Reports may also be viewed from terminals within the network, a spokesman said, and selectively broadcast to multiple locations from a control site or selectively viewed and printed from remote terminals.

Security features restrict access by terminal to selected Power queue classes. Dtaprint is said to require no systems software modifications, using standard IBM DOS/VSE and Power/VSE options. The package costs $2,400, including source code, from Suite 301, 8800 Highway 7, Minneapolis, Minn. 55426.

Applications Packages: Help CW Untie the Strings

When the word comes down that a new application is required and — as always — it's needed "yesterday," the solution is often a software package.

In the Feb. 28 issue of *Computerworld*, a Special Report on Applications Software Packages will focus on what happens *after* a package is brought in-house.

We want your input for this Special Report in the form of articles detailing your experiences with specific products as well as tutorials that examine particular topic areas regarding applications packages, but are not product-specific.

Stories and tutorials should be five to 10 pages typed, double-spaced. The deadline for submissions is Jan. 7. Black-and-white photographs and other graphics (camera-ready art, if possible) are welcome.

Further information on this Special Report and a one-page listing of possible topic areas can be obtained from Lois Paul, Senior Editor/Software. Manuscripts should be sent to her at *Computerworld*, February Special Report, P.O. Box 880, 375 Cochituate Road, Framingham, Mass. 01701.

Four Phase Unveils Release 2 for Series IV

CUPERTINO, Calif. — Four Phase Computer Systems, Inc. has announced System Software Release 2 for its Series IV product line.

Designed to provide integrated solutions for office automation and distributed processing needs, System Release 2 includes new releases of existing software and software support of new hardware capabilities. With the Systems Release concept, software packages are developed and tested together as a single integrated system. This reportedly ensures compatibility between Four Phase's software packages and its Multifunction Executive operating system.

All software is distributed together on a single master pack with an integrated procedure for configuration and generation, the vendor said.

This product includes enhancements to Foreword word processing, Vision data base inquiry and management and GMS/IV business graphics applications software. A new release of the Multifunction Executive is also incorporated.

Release 2 is free to Four Phase users. Four Phase is at 10700 N. DeAnza Blvd., Cupertino, Calif. 95014.

Vista Mumps Runs Under AOS

ELMSFORD, N.Y. — Vista Computer, Inc.'a Vista Standard Mumps (VSM) language now runs on Data General Corp.'s AOS operating system.

Mumps was previously available only as a stand-alone facility. VSM now allows multilanguage capabilities and other services AOS provides. Large data bases have been implemented with VSM, the vendor said.

VSM is available for $15,000 from Vista Computer, 85 Executive Blvd., Elmsford, N.Y. 10523.

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Provides Automatic Documentation

Utility Prevents JCL Syntax, Logic Errors

ST. LOUIS — A utility said to prevent Job Control Language (JCL) errors while providing automatic systems documentation has been introduced by Safe Software Systems, Inc.

JCL Syntax Analyzer and Flow Examiner is designed to eliminate syntactical and logical JCL errors prior to submission of a job. It also produces up to 10 reports, including the following: job step map, job flow chart, symbolic cross-reference, embedded documentation list and data set cross-reference.

The utility runs on all IBM OS and OS/MVS-type systems.

The software's purchase price, including one year of maintenance and enhancements, is $8,500. The software can be purchased over 24 months for $450/mo or over 12 months for $775/mo, including maintenance and enhancements.

Further information or a 30-day system trial can be obtained from the firm at Suite 910, 7777 Bonhomme, St. Louis, Mo. 63105.

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McGill's RAQL Now Available

MONTREAL — McGill University has announced the commercial availability of RAQL, a relational query language that reportedly provides a relational processing capability directly within SAS Institute, Inc.'s SAS environment.

RAQL is currently available under IBM's OS operating system. It reportedly enhances programmer productivity by permitting the relational processing capability to be expressed clearly and concisely and making the information in the SAS data sets more accessible. Queries on the data are more easily formulated and management of SAS data sets is made more systematic, according to the vendor.

RAQL leases for $2,000 for the first year and $1,500 for subsequent years. Further details can be obtained from McGill University, School of Computer Science, Burnside Hall, 805 Sherbrooke St. W., Montreal, Canada H3A 2K6.

'Shoe-In' System Runs on DG

ATLANTA — Interactive Systems Corp. has announced the Shoe Distributor Order Entry Inventory Management System (Shoe-In). Shoe-In runs on Data General Corp. minicomputers and microcomputers under the DOS, Rdos and AOS operating systems.

Shoe-In comes with modules for order entry, invoicing, open order/back-order control, accounts receivable, purchasing, inventory management, booking control and commission for sales personnel, the vendor said.

This package costs $25,000 from Interactive Systems, based at Suite 160, 10 Perimeter Place, Atlanta, Ga. 30339.

'Petrodata' Fits Canadian Specs

AUSTIN, Texas — Computer Application Specialists, Inc. (CAS) has announced the conversion of its Petrodata petroleum information system to Canadian specifications.

The changes deal specifically with taxes and land management. Petrodata is an on-line, interactive oil and gas accounting system designed for both large and small energy producers.

Compatible with Data General Corp. Eclipse Models C150 through MV/8000, the software ranges in price from $40,000 to $200,000, depending on options.

CAS is headquartered at Suite 119, 8900 Shoal Creek Blvd., Austin, Texas 78758.

IBM, ADR Users Get Cobol Tool

WABAN, Mass. — Tanit Software Services Co. has announced a Cobol cross-reference tool available in two versions for users of IBM OS data sets or Applied Data Research, Inc. (ADR) OS version librarian data sets.

Designated Callcopy, the tool was designed to cross-reference Cobol COPY and CALL statements used throughout a source program library, a spokesman said.

The sorted listing generated by Callcopy is by copy book name or called subprogram name, showing each program name and source text making the reference, according to the vendor spokesman.

Callcopy costs $500 for either version. An off-site cross-reference service is also available for an initial price of $100 and $2.50 per 1,000 lines of source code.

Tanit can be reached through P.O. Box 191, Waban, Mass. 02168.

CAS Converts 'Petrodata'

SALINA, Kan. — Eagle Software, Inc. has announced the availability of two software products designed to improve system performance for users of Data General Corp.'s Infos II file management system.

Both products run on DG systems, including the S140 up through the Eclipse line to the MV/8000.

The first product, named I-Xcel, is an Infos II accelerator that reportedly improves response time in active AOS and AOS/VS DG environments. I-Xcel is intended for systems with heavy Infos activity, according to the vendor.

The AOS version of I-Xcel costs $5,000, and the AOS/VS version is priced at $6,000.

The second product, I-Spy, is an Infos II monitor that reportedly tracks and displays Infos operations. I-Spy displays the identity of each Infos II user, the user's program name, the total number of Infos II operations, the number of record locks and other file information, the vendor explained.

I-Spy is also capable of displaying user-specific requests at scheduled intervals, according to the vendor. It costs $2,250 for the AOS release and $2,750 under AOS/VS, according to the vendor.

Further details on the two products can be obtained from Eagle through P.O. Box 26, Salina, Kan. 67401.

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Financial Packages Merge DP, WP for Wang VS

LOWELL, Mass. — A line of financial software packages that are said to integrate data processing and word processing has been announced for Wang Laboratories, Inc.'s VS line of computers.

The packages, which are being produced by Software International Corp. (SI) and marketed by Wang, is compatible with mainframe versions of SI software, a Wang spokesman said. The seven packages include general ledger and financial management, accounts payable/expense analysis, accounts receivable/cash management, fixed asset accounting and property control, payroll/personnel, human resources management and comprehensive report writer.

Within the general ledger system, users reportedly can merge data processing files with letter formats without manual rekeying. Additionally, the software can recapture numerical information from word processing documents and utilize the figures in the data processing files, the spokesman noted.

The packages, designed to function in both stand-alone and distributed processing modes, will be available February at prices ranging from $14,500 to $30,500 from Wang, One Industrial Ave, Lowell, Mass. 01851.

Accounting Tool Serves Nonprofit Groups

OAKLAND, Calif. — Data Directions, Inc. has developed a software accounting package for nonprofit organizations using Wang Laboratories, Inc. Wang VS systems.

Software for Non-Profit Association Processing (Snap) reportedly handles an organization's membership and pledge accounting in an "open-item" accounting format. It interacts with accounts receivables, accounts payable, general ledger, mail list management and conference registration modules, eliminating unnecessary duplication and operation costs, the vendor said.

Snap can be purchased on a modular basis beginning at $8,000. Further details can be obtained from the vendor at 7700 Edgewater Drive, Oakland, Calif. 94621.

Updated General Ledger Out for TI

MONTROSE, Calif. — Mini-Computer Business Applications, Inc. (MCBA) has introduced Release 2 of its General Ledger package for the Texas Instruments, Inc. DS990 business systems.

The package reportedly features user-designed formats and displays function key options on the screen.

The user may define a fiscal year containing up to 13 accounting periods. Using a built-in report writer, the user can create financial statements showing current-period and year-to-date figures reflecting prior-year comparatives of budgets, a vendor spokesman said.

Source code licenses for the package are available for $2,000 for one computer from MCBA, 2441 Honolulu Ave., Montrose, Calif. 91020.

Versin of 'Cogen' Runs on DEC, NCR

BERKELEY, Calif. — Bytek has introduced a Phase One Systems, Inc. Oasis version of Cogen, the company's Ryan-McFarland Corp. RM Cobol program generator that runs on Digital Equipment Corp. and NCR Corp. minicomputers and micros.

Cogen was designed for standard business applications.

Written in Cobol and requiring less than 10K bytes of memory, the Oasis version of Cogen is priced at about $1,000 from Bytek, 1714 Solano Ave., Berkeley, Calif. 94707.

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Inventory Control Module Bows

NEWTON, Mass. — TEC, Inc. has announced a bill of materials/inventory control module for Digital Equipment Corp.'s PDP-11 minicomputers and VAX-11 superminis. The on-line interactive system is said to maintain manufacturing and inventory information for finished goods, purchased components, raw materials and subassemblies.

Features of the system include on-line inventory tracking, stock status reporting, inventory costing and valuation reporting. The system generates perpetual count quantities and cost data for purchases, inventory movement and shipments, a spokesman said.

Users can maintain single-level and indented bills with and without costs. A cost build-up processing function automatically builds up the standard material, labor and overhead costs from lower level components, the company claimed.

The system costs $20,000 from TEC at 30 Tower Road, Newton, Mass. 02164.

DSS Targets VAX/VMS

TORONTO — Management & Planning Software Group (MPS) has announced a decision support software system for Digital Equipment Corp. VAX/VMS users.

The Interactive Decision Support System (IDSS) is intended for senior executives, financial analysts and secretaries, the vendor said. It features full-screen facility, enabling users to enter data on-line directly onto an electronic spreadsheet; a built-in editor that checks for errors; consolidation and allocation features; simulation capabilities; and color graphics.

Prices for this product range from $30,000 to $60,000, depending upon configuration. Further details can be obtained from MPS at Suite 201, 201 Consumers Road, Willowdale, Toronto, Canada M2J 4G8.

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Version 12 of 'Select' Out for RSTS/E, VMS

LEXINGTON, Mass. — Evans Griffiths & Hart, Inc. has announced Version 12 of Select, its record extraction package for users of RSTS/E on Digital Equipment Corp.'s PDP-11 minicomputer and users of MVS running on DEC's VAX-11 system.

Version 12 contains an operator that allows the user to generate more than one output record for each input record, while allowing Select's front-end modules to be compiled under either Basic-Plus or Basic-Plus 2, the vendor said.

Select licenses for $1,500 from Evans Griffiths & Hart, Inc., 55 Waltham St., Lexington, Mass. 02173.

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IBM 3101 Display Terminal

IBM 3232 Model 51 Printer

Package for Data Dictionary, Nursing Home Tool Debut

SOUTH BEND, Ind. — Better Methods Software Corp. has introduced a software package for updating Hewlett-Packard Co.'s Data Dictionary from a Cobol source program and an on-line accounts receivable system for nursing homes with HP 3000 computers.

The D-Aid/3000 package posts program information, data element usage, usage of called subroutines and copy-lib entries to the Data Dictionary from a Cobol source program, the vendor explained. This product also includes the ability to create Cobol Data Division source books from the Data Dictionary, the vendor said.

The one-time license fee for D-Aid/3000 is $3,200.

The Nursing Home Accounts Receivable System (Nhars/3000) handles patient admissions, patient discharges, daily census, standard pricing, third-party billing, state billing, aging of accounts and inquiry.

A one-time license for Nhars/3000 costs $40,000. Better Methods Software is based at 315 W. Jefferson Blvd., South Bend, Ind. 46601.

Generator Targets Burroughs

MINNEAPOLIS — A program generator designed for the Burroughs Corp. B1700, 1800 and 1900 computers that reportedly allows programmers to create executable on-line update, inquiry and file maintenance programs quickly has been announced by Technalysis Corp.

Generation can be used with existing data base or conventional files and will create programs in Cobol 68 or 74, the vendor said. The package requires no special coding skills and allows the programmer to design formats on the CRT screen, then specify program edits and parameters, the company said.

Generation is priced at $7,500 from Technalysis, 6700 France Ave. S., Minneapolis, Minn. 55435.

'Plot 50' Enhanced

BEAVERTON, Ore. — Tektronix, Inc. has announced an enhanced version of its Plot 50 two-dimensional drafting package for the firm's drafting systems.

Enhancements to the software were designed to give greater flexibility and improved performance. Specific enhancements include a smooth-line capability, support for the Tektronix 4909 multiuser file management system, support for up to 512K bytes of memory and multiple plotter drivers to support a variety of plotters, the vendor said.

The enhanced software costs $12,000, the same price as the original version. For current users the enhancements are offered as a no-charge option. Tektronix can be reached through P.O. Box 500, Beaverton, Ore. 97077.

Accounting Tool Out for Doctors

BELLEVUE, Wash. — Standia Systems has announced a medical accounting package for users of the Iris operating system or other software developed under Point 4 Data Corp.'s Force automatic programming system.

Medi-4 handles patient billings, physician statements and insurance form processing and includes "reminder" mailings for billings and appointments, a spokeswoman said.

Medi-4 costs $10,000 from Standia, 12951 N.E. Bell-Red Road, Bellevue, Wash. 98005.

CDC Offers Service For Money Managers

GREENWICH, Conn. — A service designed to aid money managers and those involved in the debt market has been announced by Control Data Corp.'s Business Information Services Division.

Fedwir offers a series of daily and weekly on-line printed news reports and access to a data base containing time series on all aspects of the money markets.

The reports and data bases are maintained by the San Francisco-based Money Market Services, Inc., a financial forecasting company that specializes in analyses and projections of Federal Reserve activities.

Accessible from any Ascii terminal, the service is one application of the firm's time-sharing service, which calls for a $100/mo minimum usage.

CDC's Business Information Services Division is based at 500 W. Putnam Ave., Greenwich, Conn. 06836.

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Data Center Cost Package Out for HP 3000 Systems

PHILADELPHIA — MDC Systems Corp. has unveiled data center cost-control accounting software for Hewlett-Packard Co. HP 3000 computers.

The Data Center Accounting Systems/3000 (Dcas/3000) allows the data center to be managed as a business, providing the managerial tools to administer and optimize the data center resources, plan resource capacity and maintain appropriate emphasis on the user-supplier relationship, according to MDC Systems.

The Dcas/3000 is integrated and screen-driven and allows on-line query of the data base for monitoring and allocating HP 3000 resources to clients and cost centers. It was developed with a statistical acquisition module that reportedly provides the data base with utilization statistics.

A billing module reportedly combines all utilization statistics into resource charges for support functions and special service charges to form an invoice, allowing full cost recovery, the vendor said.

The price of Dcas/3000 is $4,000 for the first CPU and $2,000 for each additional CPU. Further details are available from MDC at 1818 Market St., Philadelphia, Pa. 19103.

Bakco Expands Purchase System

ARLINGTON HEIGHTS, Ill. — Bakco Data, Inc. has announced an expanded version of its stand-alone Purchasing Control System for Hewlett-Packard Co. HP 3000 computers.

The application is developed through Quasar Systems Ltd.'s fourth-generation application generator and utilizes the HP Image data base management system. It reportedly provides different types of purchase orders, such as regular, blanket, drop ship and no charge.

Automatic receiving reports can be printed on demand and are preslotted to where the merchandise is to be stored in the warehouse. The system can insert messages into the purchasing routine and allows the user to tailor the messages for the purchase order and/or receiving report, the vendor claimed.

The software costs $9,800 from the firm at Suite 190, 85 W. Algonquin Road, Arlington Heights, Ill. 60005.

Finance Package Runs on HP 3000

TULSA, Okla. — Hinderliter Management Systems, Inc. has announced Aim/3000, a financial accounting package for the Hewlett-Packard Co. HP 3000.

Aim/3000 is compatible with the and can be interfaced with a user's existing packages. It is made up of four subsystems: general ledger, accounts receivable, accounts payable and payroll.

All standard reports such as aging, budgets, general ledger, audits and diagnostics are included in the appropriate modules, according to the vendor. The balance sheet, profit/loss and change in financial position reports are custom-designed.

The Aim/3000 Report Writer is included with the general ledger system to allow each customer to write specialized reports as needed.

Aim/3000 is priced by module: $8,000 each for the accounts receivable and accounts payable systems, $9,000 for the general ledger system and $7,500 for the payroll system. All systems are available for use through Hinderliter's remote processing service.

Hinderliter can be reached at P.O. Box 35505, Tulsa, Okla. 74135.

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Intel Operation Aims At Software Support

SANTA CLARA, Calif. — Intel Corp. has announced the operation of its Software Distribution and Support Operation, which will provide worldwide Intel customers with software system support for Intel's own software as well as other third-party software that the group distributes.

This operation is intended to complement Intel's systems products, particularly those based on the firm's 8086 and 8088 architectures.

For example, a System 86/330 customer can obtain from Intel fully supported operating systems, languages and applications software developed by Intel and independent software vendors, a spokesman said. The software system support includes features such as a toll-free telephone hot line, an annual software directory (the Intel Yellow Pages), newsletters, technical reports and customized software configuration and consultation at the user site.

Users can choose the level of software support assistance they need. The support will be available on a contract basis, the vendor said.

The Intel Yellow Pages directory will be distributed free to Intel customers from the firm's headquarters at Mailstop SC6-306, 3065 Bowers Ave., Santa Clara, Calif. 95051.

Micro Notes

Quadram Introduces Aid for IBM Micro

NORCROSS, Ga. — Quadram Corp. has introduced software for the IBM Personal Computer said to cut running time of computer programs by at least 80%.

The Quadmaster diskette is also said to allow the computer to send and receive data at speeds hundreds of times faster than for which it was originally designed. The fast speed reportedly is created by the diskette's Quadram drive program, which provides a random-access memory (RAM) disk operation using part of the computer's memory as a solid-state disk drive.

Quadmaster can only be used with IBM Personal Computers equipped with Quadboard, the firm's four-function expansion card. Quadmaster with Quadram drive is available at most retail computer stores for $19.95 or is free with the purchase of Quadboard.

Quadboard costs $595 (64K RAM), $775 (128K RAM), $895 (192K RAM) or $995 (256K RAM). Quadram Corp. is located at 4357 Park Drive, Norcross, Ga. 30093.

Other Micro Software

Fox & Geller, Inc. has announced a new version of Quickcode, a program generator for use with Ashton-Tate's Dbase-II data base management system.

The generator runs on any system using Digital Research, Inc.'s CP/M operating system and features 132-col-wide screens and forms and the capability to print mailing labels up to four at a time, the company claimed. The new version also includes Decan, a feature that reportedly lets users print, edit or delete selected parts of a data base based on a broad range of selection criteria.

Quickcode costs $295, with upgrades priced at $25 from Fox & Geller, through P.O. Box 1053, Teaneck, N.J. 07666.

Tascon Corp. has announced a Keyed Indexed Sequential Search and Direct Access File Manager, which includes an indexed sequential inverted "B" tree and a direct-access record management system. Kiss is said to provide user-selected variability of key and data lengths. Up to four different Isam files and 16 direct access files may be open to a program at any one time.

The system reportedly operates on Intel Corp. 8080/85 and Zilog, Inc. Z80-based systems using CP/M, a spokesman said. The system is implemented in assembler language. Kiss is distributed as a relocatable module on an 8-in. single-density floppy diskette for $225 from the Eidos Systems Corp., P.O. Box 3216, Nashville, Tenn. 37219.

Molecular Computer has announced a Ryan-McFarland (RM)/Cobol compiler-compatible version of its N/Star operating system for its Supermicro line.

The capability reportedly enables Supermicro users to use CP/M-based business application software in a multiuser environment. The Supermicro line supports up to 32 simultaneous users with a dedicated Zilog, Inc. Z80A, 8-bit application processor with 64K bytes of random access memory.

The new RM/Cobol multiuser compiler software costs $750. The Supermicro 8 costs $7,995 and the Supermicro 32 costs $17,995 from 1841 Zanker Road, San Jose, Calif. 95112.

Information Network Systems, Inc. has announced a menu-driven control program for Digital Research, Inc.'s CP/M or MP/M operating systems which is said to offer compatibility with Integral Data Systems, Inc.'s (IDS) Prism, Microprism and Paper Tiger printers.

The program allows users independently to select character density, fixed or proportional spacing, justification, horizontal and vertical tabs, line spacing, margins and page size.

The IDS Printer Control costs $34.95. The company can be contacted through P.O. Box 2011, Warminster, Pa. 18974.

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Data Briefs

Mux/Concentrators Bow

CHAMPAIGN, Ill. — Data Communications Brokers, Inc. has introduced two statistical multiplexer/concentrators that are said to concentrate up to four or eight asynchronous terminals onto one phone line.

The C-4XL and C-8XL feature automatic error correction. Terminal speeds can be up to 4,800 bit/sec, the composite link up to 9,600 bit/sec.

The C-4XL is available for $1,450; the C-8XL, which supports only synchronous modems on the composite line and features five LED channel indicators, is available for $2,350.

Data Communications Brokers is at 3000 Research Road, Champaign, Ill. 61820.

Modem Fits Apples

NEW BRIGHTON, Minn. — A user-friendly modem for Apple Computer, Inc. Apple II, Apple II+ and Bell & Howell Corp. computers has been announced by Multi-Tech Systems, Inc.

The Modem II plugs directly into an I/O slot for full- or half-duplex communications at 110- or 300 bit/sec. Software-compatible with other Apple II smart modems, the unit is said to provide crystal-controlled, digital data communications with other Bell Laboratories 103-type equipment.

The unit costs $369 from Multi-Tech, 82 Second Ave. SE, New Brighton, Minn. 55112.

Terminal Line Extended

HAUPPAUGE, N.Y. — Applied Digital Data Systems, Inc. (Adds) has made an addition to its Viewpoint terminal line.

The Viewpoint/78, in conjunction with an Ascii-to-Ebcdic controller, reportedly can be used in any application in which an IBM 3278 terminal and 3271-2 controller are used.

The Viewpoint/78 costs $1,800 from Adds at 100 Market Blvd., Hauppauge, N.Y. 11787.

Northern Telecom 'Open World' Boasts Compatibility, SNA Support

By Bruce Hoard
CW Staff

NASSAU, The Bahamas — The "Open World" that Northern Telecom, Ltd. unveiled onboard the *S.S. Rotterdam* during a Caribbean cruise and seminar recently will feature compatibility with DP vendors and support for IBM's Systems Network Architecture (SNA).

The Toronto-based manufacturer of telecommunications equipment also told approximately 400 telephone company users that it will offer interface specifications to the public and provide 1M bit/sec. local-area communications over twisted pair cable over the next three years.

Plans for an X.25 interface for packet-switched networks were also divulged.

"We are announcing at this time major agreements with Sperry Univac and Digital Equipment Corp.," added Eugene Lotochinski, vice-president for advanced systems with Northern Telecom, Inc., the firm's U.S. subsidiary. Those agreements will allow terminals from those two vendors to interface with Northern Telecom's SL-1 private branch exchange (PBX).

Linking SL-1, Sperrylink

In the case of Univac, it and Northern Telecom have set up s test site that reportedly will link the SL-1 to the recently introduced Sperrylink Office System.

Lotochinski also noted that negotiations are "in progress with other major data processing vendors."

Northern Telecom will provide for the support of "selected terminal equipment" using SNA, Lotochinski said. The SNA support will be offered with Northern Telecom's SL family of products and introduced in conjunction with a new application processor late in 1984.

The company will offer, "for a nominal fee," the asynchronous data interface specifications for the SL-1. The fee is $500. "Other interface licenses will also be offered," Lotochinski declared.

Turning to high-speed local-area communications, he observed, "We have demonstrated in the lab that existing telephone wiring, already in every building, is capable of carrying data at speeds well in excess of one megabit." He acknowledged the presence of coaxial-cable-based local-area networks by announcing that Northern

(Continued on Page 54)

For Both Copper Wire, Coaxial Cable

Gandalf Offers Communications Net

WHEELING, Ill. — A data communications network which reportedly accommodates both copper wire and coaxial-cable installations and permits future upgrades without disrupting existing service has been announced by Gandalf Technologies, Inc.

Pacxnet includes a switching node, a variety of terminal and information resource attachment devices, internode connections and network gateways, according to a vendor spokesman.

The company's private automatic computer exchange (Pacx IV) with a routing software option is the introductory switching node. Terminal, information resource and internode connection is provided for copper wire and coaxial cable, a spokeswoman said.

Pacxnet has three network gateways, including private branch exchange voice exchanges, X.25 packet-switched networks and IBM 3270 terminal networks.

A two-node network supporting seven terminals and 15 ports costs $20,000 with networks of up to eight nodes available. Gandalf is at 1019 S. Noel, Wheeling, Ill. 60090.

Informer Announces Series Of IBM 3270-Compatible Units

LOS ANGELES — Informer Computer Terminals, Inc. has announced a series of IBM 3270-compatible terminals. The Informer 370 terminals are reportedly 80% smaller and 60% lighter than their IBM counterparts and feature an IBM 3278 typewriter-style keyboard.

The 370 series includes the Model 201, with keyboard in a walnut cabineted pull-out drawer; the Model 202, with a 9-in. monitor attached at the back of the keyboard; the Model 203 with a detached keyboard and coiled cord; and the Models 204 and 205 with detached keyboards and 9-in. and 12-in. monitors, respectively.

The terminals reportedly will be available in December at a cost of about $2,000 each. Informer can be reached through P.O. Box 91054, Los Angeles, Calif. 90009.

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Like all Apollo nodes, the DN600 has a 32-bit central processor, 16 million bytes of virtual address space and support for up to 3.5 million bytes of main memory. In addition, the new color node has up to 2 million bytes of dedicated display memory, more than the total capacity of many other computer systems. Display memory can be used to store fonts, graphic templates, parts of oversized images, or the next image in an animated sequence. The DN600 provides 320 million-bit-per second area fills, so the entire screen can be changed in about 1/30 of a second.

The DN600's 19-inch, high resolution display offers a selection of more than 16 million colors and lets users select from seven interactive and imaging modes. Users can choose from a combination of 1024 x 1024 and 512 x 512 pixel resolution and 4, 8, or 24 planes for different levels of color selection.

The DN600 is ideal for applications such as computer-aided design, where high resolution and fast response times are essential; and for solids modeling and imaging, where users build high quality graphics with many colors and subtle shading.

The DN600 is fully software compatible with Apollo's monochromatic DN400 or DN420 nodes, and can be added to any existing Domain network.

And the new DN600 node costs under $60,000, far less than the price of any other 32-bit computer with comparable color graphics capability.

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Apollo's new Domain Distributed Data Management System (D3M) is the first truly distributed database management system available from any computer manufacturer. It combines the efficiency and performance of a CODASYL-compliant DBMS with the flexibility of a relational interface. Its applications range from a personal electronic file cabinet to a full mainframe-level, shared database.

D3M works exactly the way engineering and scientific users work, allowing members of a design team to create and update a database to store their own information. It's much easier to use than traditional "top-down" systems with predefined structures and centralized approaches. And with D3M, users can access each other's databases or combine them into a larger total data resource accessible to other groups, such as manufacturing and marketing.

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The Apollo Domain distributed processing system is unique in its ability to combine a powerful, mainframe-like architecture, high resolution bit map graphics, and a high performance local area network. The Domain processing system consists of a collection of low-cost 32-bit workstations, each capable of running very large and complex applications. All workstations share a common network-wide virtual memory operating system that allows users to share resources—data, programs, files, and peripherals—transparently, across the network.

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Communications Link Ties PDP-11s, VAXs in Local Net

CANTON, Mass. — A communications link for interconnecting multiple Digital Equipment Corp. PDP-11 and VAX-11 computers in a local distributed processing network has been announced by Gen/Comp, Inc.

The Gen/Comp Model 2081 Parallel Communications Link is said to interconnect up to 16 DEC PDP-11 or VAX-11 computers operating under DEC's RSX-11M or Decnet in a local distributed processing network permitting simultaneous conversations. It is interchangeable with and performs like the DEC PCL11-B, the vendor said.

Utilizing a time division multiplexed (TDM) 16-bit parallel bus with communications in a direct memory access block transfer mode, the link reportedly allows removal of computers without disabling the bus. Maximum bandwidth is 1M byte/sec.

The link is priced at $4,000, according to the vendor, located at 6 Algonquin Road, Canton, Mass. 02021.

Firm Unveils 'Open World'

(Continued from Page 51)

Telecom will provide a gateway from its SL products to the "major" local-area networks.

Seminar attendees had the opportunity to tinker with Northern Telecom's Displayphone, a combination telephone/CRT terminal. Also on display were prototypes and mock-ups of Displayphone-type terminals to be offered.

Lotochinski said that starting in 1984, these "cousins of the Displayphone" will feature integrated voice and data terminals that will have larger screens, a keyboard for "full-time professional use" and other features. In 1985 a more powerful terminal including graphics and image capabilities, in addition to voice and text, will be offered, he said.

Bell Northern Research (BNR), the research and development arm of Northern Telecom and Bell Canada, demonstrated some of those future capabilities in a trailer located on the upper promenade deck.

The "outboard application processor," to be introduced along with SNA in 1984, is a module that Lotochinski said will provide the storage and processing required to provide other services.

Hudson joined John A. Roth, president of Bell Northern Research, in an interview with *Computerworld*. When Roth was asked how he measured productivity in a research environment such as that at BNR, he said that he goes by how successful products are in the marketplace. Such evaluations must be done over a period of years, the firm president said, adding that BNR is "pretty effective" in that area.

He was hesitant to compare BNR with Bell Laboratories in the U.S., saying "Bell Labs does a lot more fundamental research than we do." BNR allocates only 5% of its total budget to such fundamental research, he said.

Hudson explained that Northern Telecom sales in the U.S. are expanding at 30% annually while remaining flat in Canada because of the recession. The company is penetrating new markets in the U.S., he said.

He emphasized the modularity of the SL-1, noting older models are upwardly compatible with the features on newer ones.

Bell Canada owns 55% of Northern Telecom's stock. Northern Telecom in turn owns 70% of BNR; the other 30% is owned by Bell Canada. Although AT&T used to own part of Bell Canada, it had divested itself of those holdings by 1965.

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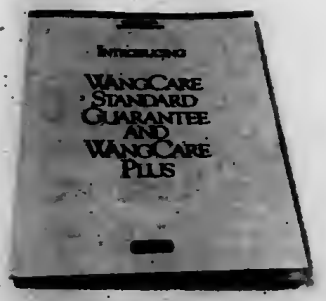

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For General Business Applications

Honeywell Adds CRT Terminal

WALTHAM, Mass. — Honeywell, Inc. has introduced a synchronous editing CRT terminal for use in general business applications. It is said to offer enhanced visual presentation features, extensive data editing and form validation capabilities.

The VIP7814 includes such features as 72-line scrolling and a buffered printer adapter. It is said to allow visual and form attributes to be stored in every character location.

The terminal communicates synchronously with a host utilizing Honeywell's VIP protocol block transmission and is capable of operating at transmission rates up to 9,600 bit/sec.

The terminal, available in January, will sell for $2,700 from Honeywell, which is located at 200 Smith St., Waltham, Mass. 02154.

Rixon Modem Designed For TRS-80, Apple, Rainbow

SILVER SPRING, Md. — A 300-bit/sec modem for small business systems and personal computers is available from Rixon, Inc.

The R103J was designed for such machines as the Radio Shack TRS-80, Apple Computer, Inc. Apple microcomputers, Digital Equipment Corp. Rainbow and Professional 325 and 350, but will reportedly operate in any 300 bit/sec asynchronous application.

The unit transmits and receives serial binary data full-duplex over the two-wire direct distance dialing switched network.

The R103J is compatible with all Bell Laboratories and Rixon 103 and 113 series data modems. It is also compatible with Bell 212 and Rixon T212A and TA212A data modems when the 212s operate in the low speed mode.

The modem costs $199. Rixon is at 2120 Industrial Pkwy., Silver Spring, Md. 20904.

Keyboard Buffer Out for IBM 3277

GREAT NECK, N.Y. — Telemetrix, Inc. (TMI) has unveiled a keyboard buffer product that reportedly improves the usability of IBM's 3277 terminal series.

The TMI 7701 keyboard buffer prevents loss of typed characters and provides type-ahead capability, according to Telemetrix. It is said to be completely transparent to the user and simple to install, as it requires no external power source.

This product is currently available for $175. Telemetrix is at 300 Northern Blvd., Great Neck, N.Y. 11021.

FCC Fines CCI $500 Over Rates

WASHINGTON, D.C. — The Federal Communications Commission (FCC) has slapped a $500 fine on Consortium Communications International, Inc. (CCI), a resale international telex carrier, claiming the company advertised rates not contained in its tariff and billed some customers at the advertised rates last July.

According to CCI's President Yaakov Elkon, the billing was due to a computer error that has been corrected.

However, despite the correction, the company violated Section 203(C) of the Communications Act, the FCC said, and must pay the $500 fine.

Prentice Reduces Prices On Selected Modems

SUNNYVALE, Calif. — Prentice Corp. has announced 9% to 15% price reductions on selected products in its line of Bell 212- and 202-compatible modems. The reduced prices of the affected products include selected options and standard interconnect cables that previously were priced separately.

The new price of the P 212A stand-alone model, including voice/data switch and interconnect cable, is $650. The previous price was $695 for the modem alone. The rack-mounted P 212A, including a cable, has been reduced to $550 from $600, plus $10 to $20 for a cable.

The stand-alone version of the microprocessor-controlled P 212C modem has been reduced from $710 to $675. The rack-mounted model of the P 212C has been reduced from $645 without cable to $575 with cable.

More information is available from Prentice, 266 Caspian Drive, Sunnyvale, Calif. 94086.

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Curing the D[illegible] Syndrome:

The Case for Specialized Training For Computer Operators

What is your computer center worth? $5 million or more? Why should you entrust that environment to ill-prepared operators? Would you let someone who just received a driver's license operate an 18-wheeler?

By Peter Berkeley

OF ALL DP TRAINING AREAS, PERHAPS THE most neglected is computer operations. In spite of loud complaints about recognition from operators, little has been done to remedy the situation.

How vital a role do operators play? Their typical environment includes on-line systems, direct-access devices and a host of extremely sophisticated software systems.

Operators must manage their installations' resources so that response time is fast and job backlogs are kept to a minimum. Downtime for any reason is expensive. At one installation I know of, it costs $200 per minute. Depending on your installation size, this figure could be much higher. For example, consider the consequences of downtime in a bank data center that handles a nightly clearing house transaction of $20 million. What if the the system went down three

IN DEPTH

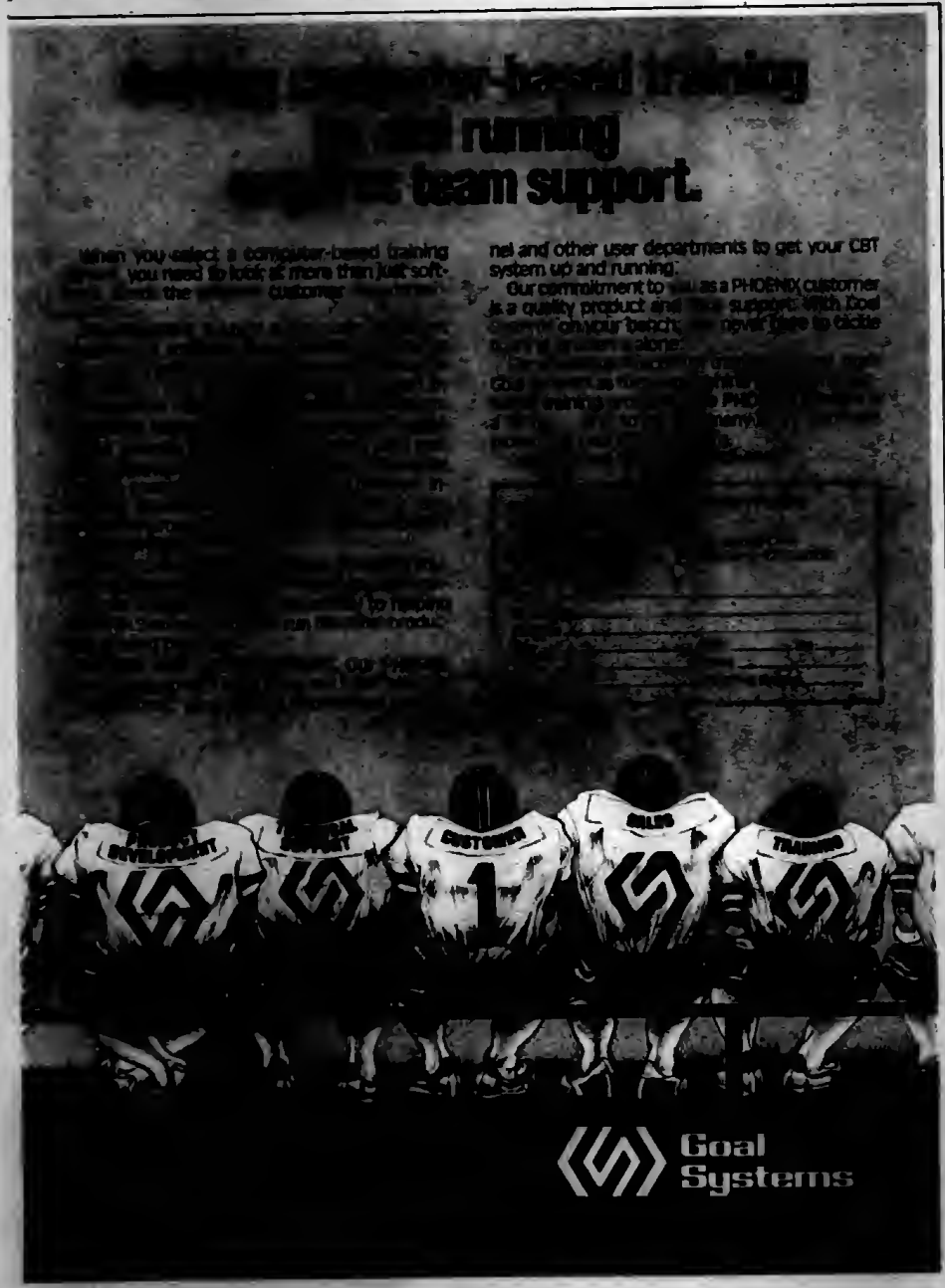
times in a week, or even in a month?

Here is a sobering thought for operations managers: Have you estimated the value of your computer center lately — hardware and software? What is it worth? $2 million? $5 million? $7 million or more? Would you let someone who just received a driver's license operate an 18-wheeler?

The analogy is fairly simplistic, but the message is clear. Why should you entrust that expensive operations environment to operators who are less than adequately trained for the job?

Although operators are not as physically involved with the computer as they were 10 years ago, they have much more responsibility for what takes place in the computer center. But there is no coordinated, career-oriented master plan for computer operators that will help them prepare for this important task. Nor is much being done to encourage operators to become professionals.

Programmers generally have a fairly good idea of where their careers are headed. They get chances to move into areas like systems analysis and design, data base administration or even systems software. In contrast, computer operators have no such career path. They gain competence in computer operations and remain there — unless they happen to be part-time university students with definite career alternatives in mind.



Unfortunately, most computer operators are not working on degrees. Typically, they have less than two years of college-level education. And this leads to two major problems with which management and operators must come to grips.

- First, most computer operators don't view operations as a career in itself. They intend it to be an entrance to a career in data processing, with programming as the next logical step. But usually one of the entry-level requirements for programmers is a degree.
- Second, operators seldom begin to think of a transition to programming before they have become junior console operators. By this time, they have been exposed to most facets of computer operations. They have had supervisory experience, have worked with users and with programmers and have had some training in Job Control Language (JCL). In other words, these employees have enough experience to make their loss felt by the operations center.

At this point, they may request programmer-type training in Cobol, assembler, PL/I, decision tables and so forth, only to realize soon that they are holding out vain hopes of ever getting into programming. Their salaries are much higher than the one set by management for a programmer trainee, so management is reluctant to let them start as junior programmers at their current salary levels.

Frustration sets in, resulting in low morale and poor attitudes toward the job and the environment. Productivity in turn becomes a major issue because there is no longer the incentive to produce for the organization.

This "dead-end job syndrome" is unfortunate and unnecessary. But before I suggest some solutions, I would like to suggest some reasons for the current situation. The reasons are not in the nature of computer operations as a job — it's an important job, and worth a lot to management. Rather, they are related to what one might call accidents of DP evolution that need to be corrected.

Following are some factors that have influenced how industry views computer operators and, as a result, how they are treated.

- *Event 1: February 1969, Sir George Williams University (now Concordia University), Montreal, Canada.* Some students vent their dissatisfaction with the university administration by going on a wild rampage through the computer center. They take axes to computer hardware and set fire to the center. Estimate of damage: well over $2 million.
- *Event 2: November 1969, The Dow Chemical Computer Center, Midland, Md.* The site is attacked by war protesters. Estimate of damage: again, over $2 million.
- *Event 3: May 1970, Fresno State College, Calif.* A firebomb is thrown

through glass windows into the computer center.

These are only a few of the incidents of wanton destruction of computer centers that plagued the U.S. and Canada in the years 1969 through 1971. Almost overnight, security of computer installations and their equipment became a major DP management issue. Computer centers were moved and their locations became closely guarded corporate secrets.

Frederick K. Lutter wrote in the October 1970 issue of *Office Automation:* "The idea that the computer center is a showcase of the company . . . is out of date. If security is to be taken seriously, the administrative manager must, first of all, control nonoperating traffic. He should hide, rather than highlight, the location of the computer center; restrict, rather than encourage, the number of noncompany visitors."

The new emphasis on security had its effect on operators. First, they were placed away from the rest of the DP staff. They were put in a very secure facility, access to which was restricted. Training facilities that they shared with the rest of the DP department became more difficult for them to use. Going to the central training facility to take a course became a tiresome chore — not worth the bother. Operators had become victims of circumstances they could not control and to which they had not contributed.

The second result has been a lack of training organized specifically for computer operators. Whatever formal training there was came primarily from manufacturers, who occasionally offered one- or two-day seminars when they wanted to introduce a new piece of hardware. On-the-job training became the primary form of computer operator training.

Growing Negativity

To rationalize this state of affairs, management seemed to develop a negative attitude toward the operations function. You might hear, "Operators don't need that much training. You can take anybody off the street and teach him to become a good operator." This particular management view of computer operators and their competence and levels of sophistication must have had a seriously damaging effect on the caliber of people hired into the profession.

It is interesting to note that before the concerns over security, there had been high standards for entry-level computer operators. For example, in 1966, Canadian National Railways in Montreal would not hire anyone as an operator who did not have programming training and/or experience. Most of its new computer operators were graduates of technical institutes.

Technology in the computer center has not stood still. Operators not only handle mundane, rote tasks like mounting tapes, feeding cards into readers, loading paper into printers and typing information on a CRT, but they must keep systems running at peak levels. To do this, they must have exceptional knowledge of on-line systems, computer hardware and networks.

'Operators rarely learn why they have to do their jobs the way they do. They learn from more senior operators, with the result that rote performance and bad habits often pass from one operator to the next.'

Operators must communicate with people who have different levels of understanding of data processing, all of whom expect satisfaction. And the more senior these operators become, the more interaction they have with end users of computer room facilities.

While some operators have had some training in these new areas, in many cases they have received only as much as they needed to know to run the machines.

Even today, operators rarely learn

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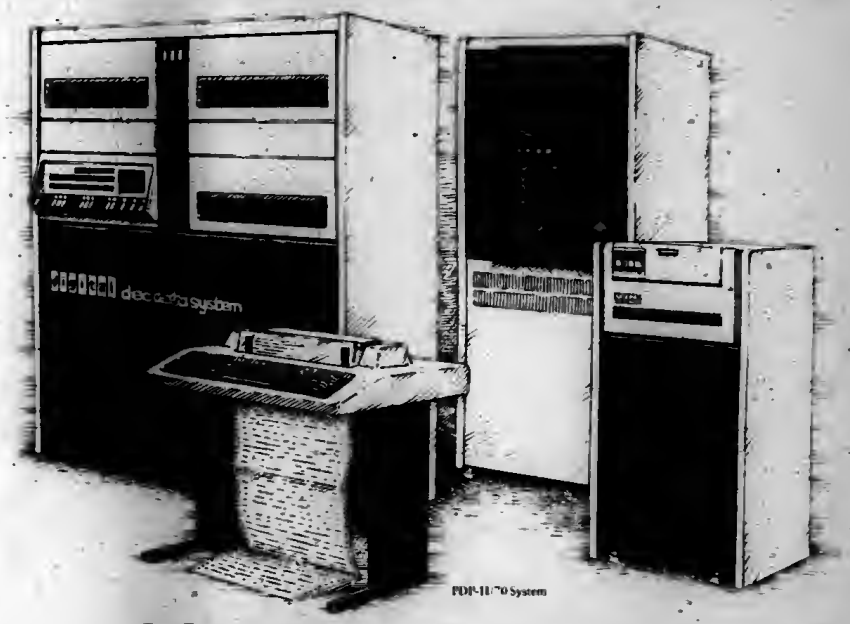

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why they have to do their jobs the way they do. They learn their jobs from more senior operators, with the result that rote performance and bad habits often pass from one operator to the next. A common response in operations circles is, "Don't ask why! Just do it! That's the way it's always been done!".

This results in a high incidence of costly computer errors. Other effects include low morale and a diminished sense of pride in the job. By far the two most disastrous effects of this trend are high turnover rates within computer operations and attraction of people to the profession who have relatively low levels of academic achievement.

In 1975, a survey at Statistics Canada indicated that over a five-year period, the educational level of operators averaged Grade 11. Between the years 1966 and 1975, the educational level had not improved by any appreciable degree.

Shift Work

There is another reason why attention should be paid to the operations training need. Most computer centers operate 24 hours a day and, in some cases, seven days a week using a rotational shift system. Some even operate a four-shift system, with the fourth shift working Saturdays and Sundays. Workers on the fourth shift make up the rest of their total weekly hours by combining with the day shift on selected days during the week.

Rotation means total adjustment at short regular intervals. Mental attitudes change, sleeping habits change and social habits must be modified — all this to fit into a work schedule that finds operators on their feet at least five hours out of every 7½-hour shift.

A new field of research has emerged recently called chronobiology. One of its postulates is that all higher life forms have daily rhythms that govern the body's "internal clock." Research indicates that upsetting this clock can do a lot of damage to our systems. Chronobiological research now concludes that shift work was a major contributing factor in the Three Mile Island incident — the worst nuclear accident in the nation's history.

From his research, Charles F. Ehret, a senior scientist at Argonne National Laboratory and a pioneer in chronobiology, suggests that the body's internal clock operates on a cycle. The normal daily cycle — called the circadian rhythm — for most people is slightly more than a day, ranging from 24½ to 25½ hours.

Almost automatically, the clock is reset by everyday cues in the environment, such as the light of day, and by social and business contacts. A person who happens to be isolated from those cues will lose his sense of time and eventually think that noon is midnight.

Chronobiological research has shown that shift work, especially where employees have other than a standard daytime shift, leads to a series of personal problems. This includes poor job performance, ill health, less vigilance, slower responses, degradation of judgment, poorer memory and loss of visual acuity. In fact, what results is a form of mental dysfunction.

The problem seems to be more acute for employees who rotate shifts than it is for employees who work permanent evening or permanent night shifts. Since there aren't enough people who want to be assigned to these shifts permanently, the result is an increase in the number of employees on rotation — the most damaging form of work.

Training for computer operators should take these working conditions into consideration. It must be standardized and consistent so that the same level of training is available regardless of the shift an operator happens to be working.

It will not help to supply this training solely through the central training facility. While that facility can still provide valuable training in computer operations, there has to be a training environment specifically designed for the needs of computer operators.

The central training facility is set

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up and geared primarily for DP professionals who work sitting down. This happens to be excellent for programmers, systems analysts, systems and program designers and project managers. Operators, however, work on their feet and are almost totally mobile in their environment for most of their shift.

By virtue of their environment, operators are uniquely task-oriented. These tasks are usually divided among functional titles such as:

- System supervisors.
- Data control supervisors.
- Lead operators.
- Tape/disk operators.
- I/O operators.
- Work-flow coordinators.
- Terminal operators.
- Satellite supervisors.

It is unfair to set these task-oriented people in a classroom to sit through hours of material for which they will find no immediate application. The typical training environment for computer operators should be one that will:

- Get and hold their attention for short periods of time.
- Encourage learning.
- Ensure a reasonable probability of success.
- Be of immediate applicability and benefit in the work setting.

Management Actions

One solution to the problem of operator training can be implemented through a series of management actions:

Action 1: Management must draw up a policy statement of support for operator training. Along with this must come the commitment to provide adequate training for all operators, regardless of their shift.

Action 2: Management must explicitly define what its performance expectations are for every functional level within the computer center. Management must then ask operators what their interpretations of functional responsibilities in the computer center really are.

Action 3: Using the results of this analysis, management should prepare formal job descriptions for every functional level within computer operations. Each job description should define the functional title, as well as the specific tasks against which both management and operators can establish evaluation and measurement criteria.

An example of a generic job de-

Job Description:
Computer Operator Trainee

PART A: COMPUTING ENVIRONMENT

Job Summary:

- Under supervision, operates printers, tape drives, card readers and card punches on a multiprogrammed computer system.
- Operates an off-line page-printing subsystem.
- Performs other job-related duties.

Job Environment:

- The Computer Operations Division operates and maintains large-scale batch and on-line services for several user departments, operating very much like a commercial service bureau.
- The division provides service 24 hours a day, five days a week, plus two shifts over the weekend.
- The computer facilities include an IBM 3033 (5M-byte main storage), with 9.6 billion bytes of disk storage, 36 tape drives, six high-speed printers, more than 200 low-speed interactive terminals and several high-speed remote job entry terminals.
- Remote facilities include 20 minicomputers at 12 regional offices, on-line to the central site.

PART B: OPERATOR DUTIES AND RESPONSIBILITIES

1. Operates printers, card readers, card punches and tape drives on a multiprogrammed system by:

- Following operational instructions from senior operators
- Mounting printer ribbons and carriage control tapes and obtaining replacements
- Checking and adjusting the position of the paper stacker to ensure proper forms fold.
- Retrieving or returning tape volumes from the tape library.
- Mounting or removing tape volumes for processing.
- Affixing preprinted labels onto magnetic tape reels.
- Notifying senior operators of apparent tape damage in order that proper reports may be filed.
- Notifying senior operators of tape drive failures
- Cleaning tape drives as defined in operational procedures.
- Checking the physical conditions of cards when loading these into the card reader or card punch
- Interpreting and using system commands to set up printing operations.
- Removing damaged or jammed cards and repunching replacement cards

2. Operates an off-line page-printing subsystem by:

- Following instructions for off-line processing of print jobs, selecting switches and dials according to job run requirements
- Loading and unloading paper forms and replenishing toner/developer in the off-line printer.
- Mounting/demounting tapes for printing.
- Recording appropriate accounting information.
- Continually monitoring the print quality of print output; stopping printing and notifying senior operators if print quality degrades.

3. Performs other related duties, such as:

- Releasing tape volumes, when required.
- Obtaining peripheral device supplies.
- Receiving instruction in the operation of remote reader/printer terminals.
- Maintaining a clean and orderly work area.

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IN DEPTH

scription for a computer operator trainee is shown in the box on In Depth/5. Part A defines the current computing environment in which the duties are to be carried out. Part B defines the tasks, roles and responsibilities of the operator.

Action 4: Management should structure tasks within each job description so that they form logical career progressions within each functional level.

Action 5: The tasks that end and begin successive functional levels should be structured so that they form logical career progressions from one functional level to the next. This will let operators see a clearly defined career path.

Action 6: Management should define training requirements that are based on specific, task-oriented, task-related objectives, which in turn are based on tasks defined in the job descriptions.

Action 7: A computer operations training officer must be appointed exclusively for computer operations. From my experience, it is futile to have a part-time trainer from the central training facility. Such a person would not have enough time for, or sensitivity toward, problems of computer operations.

It is also futile to assign a senior operator to be a part-time trainer. Not only must he split his time between regularly scheduled operations tasks and the training effort, but he also will probably be ill-equipped to handle the responsibilities required.

Action 8: Management should encourage operators to prepare for advancement. With a training plan that is based on functional requirements, higher functional level can truly be used as an incentive for promotion. More operators will be encouraged to consider careers in computer operations.

Action 9: Management should encourage external education in related training areas so that the general level of education in computer operations will improve.

Training Mandate

Assume that management has agreed to the idea of a specific training environment for computer operations. Assume also that a training officer for the center has been appointed. How can this trainer carry out the training mandate? This person must do the following:

1. Define training requirements for each functional level based on specific task-oriented objectives. This information will be derived from job descriptions.

2. Locate a library of courses that will meet the training needs of computer operations. Multimedia course formats can alleviate boredom and maximize retention.

3. Design training sessions that are relatively short (one hour is the absolute maximum). Students may not have to sit through a whole course if all they really need is a few steps within a course module.

4. Ensure that material presented is applicable on the job soon after formal learning sessions are completed. For each functional level, there is an implied sequence of tasks that operators follow. For example, it is customary to have trainees begin on equipment like the printer or the reader/punch and then migrate to tape drives, the tape library, direct-access storage devices (Dasd) and so on.

When the trainer is sure of the progression, a chart may be prepared listing job functions, equipment involved in each and names and numbers of appropriate course modules for each.

5. Set up an administrative system so that management can evaluate the effectiveness of the training. Once operators have left the training environment, their supervisors must check their work to ensure that they are applying what they learned. Supervisors must maintain a constant dialogue with the training officer so that if and when remedial training or reinforcement is required, it can be provided as soon as possible.

Reports have to be prepared for management on a regular basis. They are the responsibility of the training officer.

The training officer will determine from operations supervisors

(Continued on In Depth/11)

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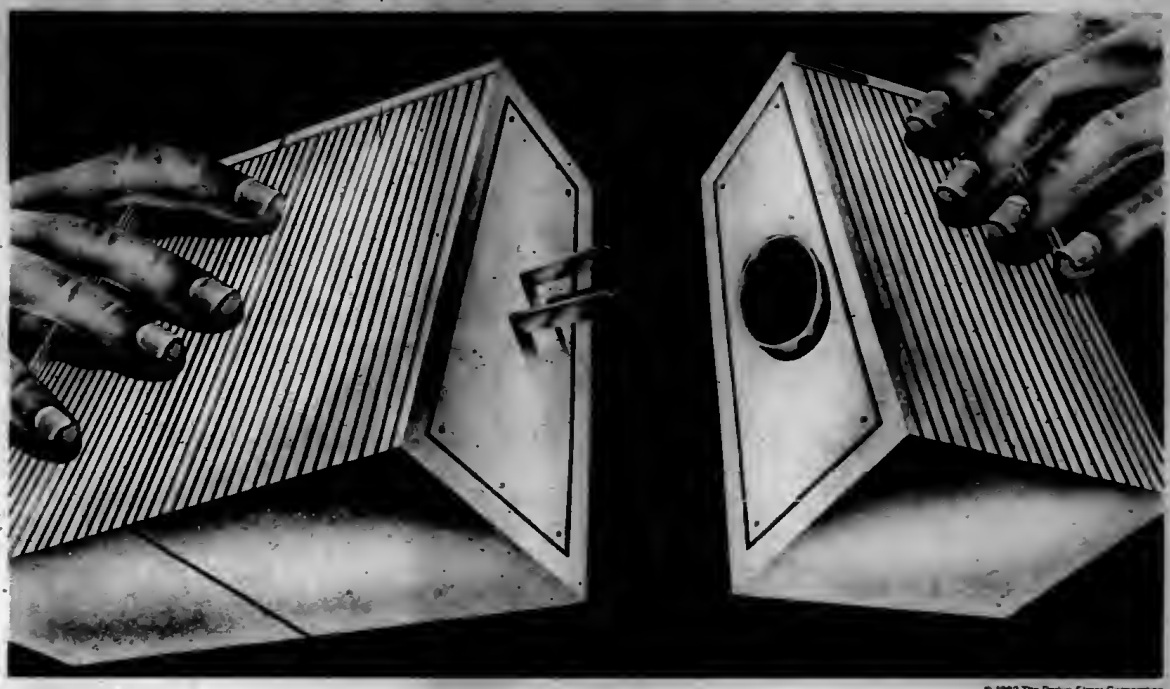

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IN DEPTH

A Case Study in Operator Training

Statistics Canada in Ottawa has been using a computer operations training program since 1979. Following are some of the program's results.

• Job descriptions of shift supervisors have been updated to include time for training subordinates. The supervisors also support the training officer with administration and tutoring.

• Based on the concept of teaching operators only what they need in order to function at a particular level, packaged training programs have been completely restructured. There is now a training manual for each functional level.

Each operator hired into Statistics Canada's computer center gets a personal copy of the complete training progression for his functional level. In addition, as progressive tasks are identified, operators are automatically scheduled for that training.

• When operators compete for and win the next higher functional level, they are given a copy of the training progression for the new level, and the process begins all over again.

• For concept-type courses, operators use the central training facilities. However, analyses of success/failure statistics showed a high number of incompletes on these non-task-oriented courses. To solve this problem, a training officer from the central training facility prepares and presents concept courses as daytime training sessions in a stand-up lecture, multimedia format. As operators rotate through the day shift, they are freed for these concept-type courses.

• The installation has grown. An Amdahl Corp. 470V/5 has been added to the V/6 installation. Another V/6 is on order. Minicomputers have been installed in regional offices across Canada. They communicate with the central computer center via an on-line system. Training of regional staff has fallen to the computer operations training officer. His duties are now like those of a training manager and he is in the process of off-loading some of his training responsibilities to concentrate on management and administration.

• Because of the rapid movement of technology, it is becoming difficult to find adequate training, especially for the higher functional levels in computer operations (another traditional problem). The installation has had to lean very heavily upon manufacturers to provide this training. This has not been very satisfactory. As a result, Statistics Canada is seriously considering computer-assisted instruction (CAI).

The intent is first to transfer some of the more interactive aspects of the training (for example, simulations) to CAI. Mini-courses will be added to the repertoire to teach about new equipment. Typically, operators will sign on at a terminal, check through a menu to determine which course they need and take it. Mini-courses will last no more than 30 minutes.

• The most amazing fact is that there has been a high level of turnover since the training program began. The reason? Operators at all levels are competing for and winning competitions within the federal government as well as in industry — not in operations, but in programming!

Gary Goudie, the operations training officer, estimates that it now takes an average of two years to train an operator properly, where it used to take up to five years. So the high turnover rate doesn't seem to be a problem, because operators become effective much sooner. Those operators who want to make careers in operations remain, are happy and are unaffected by the turnover.

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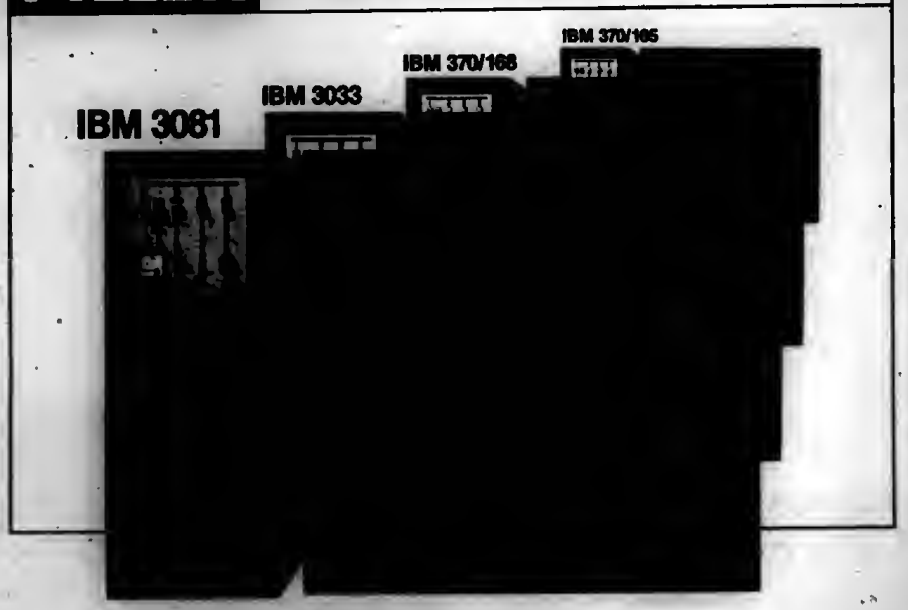

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IN DEPTH

(Continued from In Depth/6)
what the required sequence of tasks is. Then the trainer can design training programs around these on-the-job requirements. Failure to consult with line supervision prior to setting up a program of this sort will doom the effort before it gets off the ground.

Management and the training officer should bear in mind that completions aren't really course completions. Because an operator will not take an entire course in one sitting, he will take longer than usual to complete a course.

Career Paths

As we have discussed, there has seemed to be no real career path for computer operators. Most operators see their jobs as dead ends. A recent survey conducted by the Association for Computing Machinery showed that most operators viewed computer operations as a step in their career paths. It also observed that this was a traditional problem.

From my experience, the problem can be solved by management — that is, if management of computer operations and programming want to get together.

An operator should have at least risen to the rank of junior console operator before any serious consideration is given to a request for transfer into programming. In fact, the job description for a junior console operator is the first place that a course in programming languages should show up in an operator's training program. And if it is in the training plan, it *must* be incorporated into the job description.

Prior to training in a programming language, the operator has to demonstrate an aptitude for programming through appropriate testing. At this time, however, the operator would still be part of operations.

Let's assume the operator has demonstrated an aptitude for programming and that management has agreed to the transfer. When a position becomes available in programming, the transfer is made with the following conditions:

1. Operators suffer no loss in salary or increments to which they are entitled.
2. Operators are on probation in programming for one year. If, after a year, they are deemed to be miscast in programming, they should be given the choice of either returning to their former positions in operations or finding alternate employment.

Future Direction

The direction has become clear: Computer operations has evolved into a highly specialized area of data processing. Today, however, most organizations still rely primarily on on-the-job training for computer operators.

Even though management has supported training in principle, there has always been reluctance to free up operators to take a course. Production, managers argue, cannot be compromised for training.

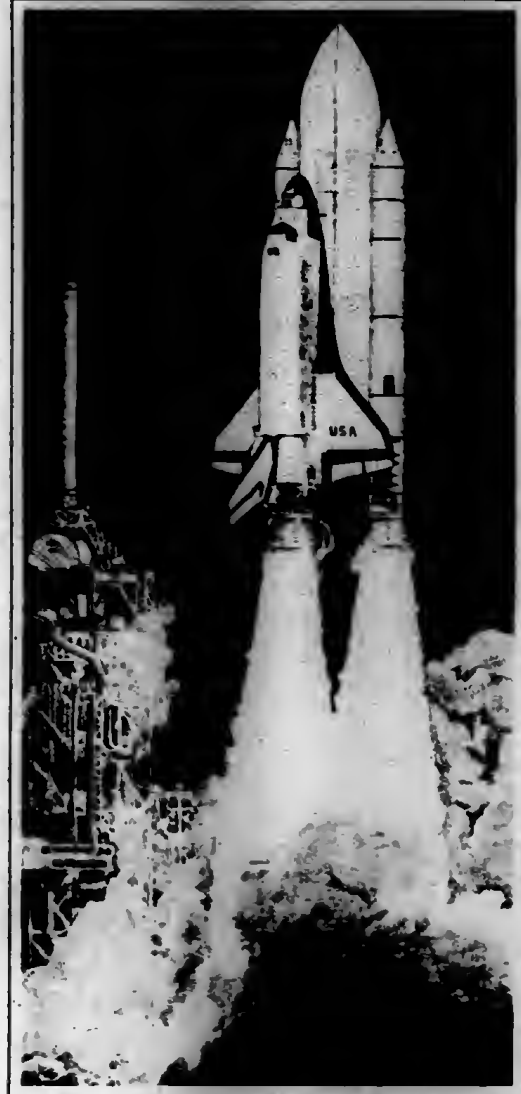
According to the Bureau of Labor Statistics' Occupational Handbook, there were about 275,000 computer operations personnel in 1980, representing an 83% increase over 1970. Consider the even more staggering fact that this group is expected to increase to 116% over the 1970 mark by 1990.

The computer operations work force is an army of key data processing professionals who work under conditions not normally experienced by the day workers of the DP profession. This group continues to cry out for attention to its training needs. The central training facility is not adequate. There must be a training environment specifically designed for the needs of computer operators.

About the Author

Peter Berkeley is a technical systems manager at Advanced Systems, Inc. in Elk Grove Village, Ill. He has more than 15 years' experience in data processing and DP education.

Berkeley designed the training program for the Computer Operations Subdivision at Statistics Canada's Data Processing Division. This article is based on his manuscript for a forthcoming book entitled Computer Operations Training — Making It Work for Management and Operators.



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Protecting the Training Budget

By Martha Lawlor

Why do companies train? Corporations set up in-house DP training programs for a variety of reasons. For instance, an equipment or software conversion may require that the DP staff be retrained in the new technology. For many corporations, the high cost and scheduling problems of training off-site have been the primary motivators. Or sometimes management concludes that it will be cheaper and more effective to train entry-level programmers than to hire experienced people.

Other corporations have recognized that each DP staff member represents a significant investment, and they strive to protect that investment through a skill-enhancement training program. One manager expressed the opinion that personnel is the only corporate asset that has the capacity to appreciate with the passage of time. A comprehensive training program can be an investment in the future performance of the DP division. Still other firms believe they can improve morale, reduce turnover and raise productivity by demonstrating a career plan to their employees, including scheduled training for each DP job position.

When it comes to training executive management and end users in DP technology, other advantages become apparent. First, management should be trained in technology because of the effects of that technology on the way in which we do business. James Martin has said, "Top management must understand that if [the corporation] is going

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to be competitive by 1985, it's got to be operating a highly computerized organization. And so it becomes the job of the chief executive officer to make sure that a highly efficient computerized corporation comes into existence. A lot of top management . . . has abdicated its responsibility for data processing, [but] the beginning of data processing has got to be a set of businessman's decisions."

Executive education accomplishes something else, however: the establishment of trust and communication between top management and data processing. Again, to quote Martin: "One of the things I detect in the boardrooms . . . is a high nervousness about technology . . . Some members of top management are almost scared of what is happening. They have not got the subject in perspective . . . If [top DP executives] can go to them and say, 'Do this! . . . This is the way to increase your productivity,' then I think they would welcome that."

But, Martin continues, because of many corporations' "substantial credibility gap" between DP executives and top management caused by "overselling of management information systems for top management," we must be careful. "Executives must be provided the information they need to make strategic decisions, and they must be certain that DP management can implement those decisions through tactical planning and technical skill."

End-user training is another must for an effective in-house DP training program. Every systems designer has fought the battle of the "uninformed user," or worse, the user with just enough knowledge to be dangerous. Such end users can be counted upon to misunderstand, fail to communicate clearly and change the specifications three-quarters of the way through development.

Yet the systems that DP designs and builds are the users' systems, and those users must be able to get what they want and understand how to operate and maintain the system. To those ends, a little user enlightenment, in the form of good training, goes a long way.

For whatever reason your company has chosen to train internally, the rationale behind the decision should influence the methods you use to evaluate and continue selling the benefits of your in-house training program to corporate management.

And what about cost? Does it include only direct cash outlays such as course leasing or audiovisual equipment charges? Or should indirect items, such as computer time, student salaries or overhead also be included. The cost of your training program can be shown as a percentage of the DP budget or the percent of staff time budgeted for training.

One of the most critical factors in a successful training program is strong

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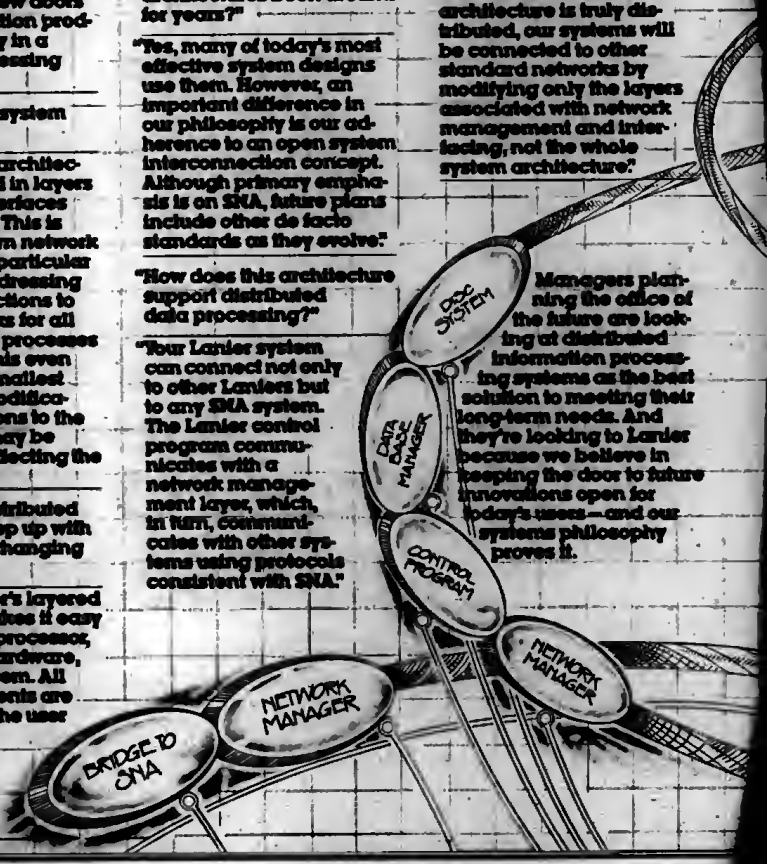

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IN DEPTH

management commitment. But that commitment can only be made for something management knows about, which means a certain amount of reporting to management by the DP manager or training manager is important.

The amount of reporting required probably increases with the size and organizational complexity of the company, but effective management reporting can help avoid potential difficulties.

In profit-oriented organizations, the costs of an operation are weighed against its contribution to the organization's goals and objectives. Training functions may come under close scrutiny since the benefits are sometimes considerably less tangible than other company units.

Traditionally, training and other support areas are the first to feel the pinch when budgets are cut. Service groups are usually considered less essential to the functioning of the business than operating departments.

While the training manager may intuitively recognize the improved performance of the staff as a result of the training program, this fact may be significantly less obvious to corporate management.

Therefore, it is a good idea to anticipate this problem by developing and publicizing the goals and activities of the training program. By establishing reporting elements that will justify the dollars spent and prove increased economy to the corporation, you can increase the visibility of and commitment to your area of responsibility.

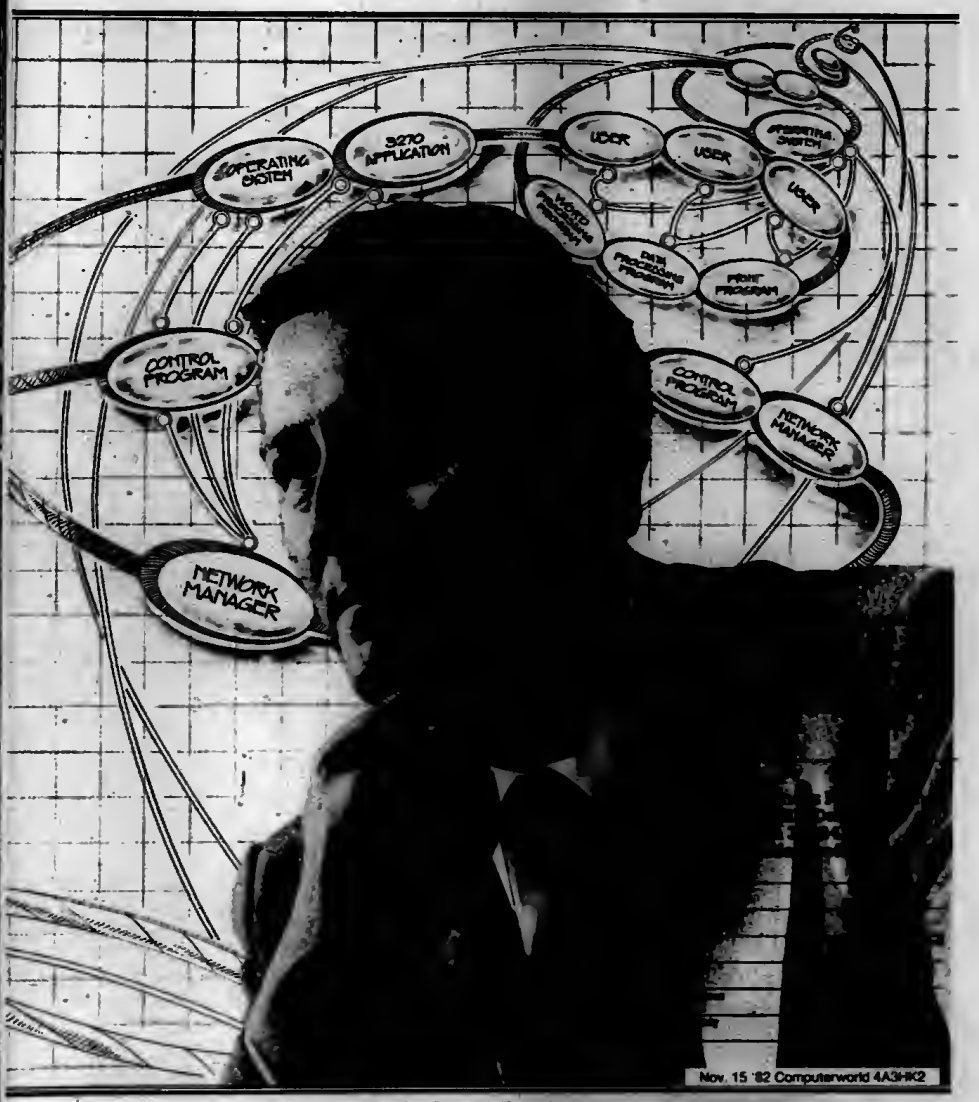
Training Hours

The most obvious reporting element is training hours for both the student and instructor. It may be helpful to separate course completions from student enrollments, since the elapsed time of multimedia course enrollments can span several reporting periods.

Student hours may also be difficult to collect when employees do not participate on a full-time basis. Year-end reporting will probably reflect many of these same items in order to present the overall results of the training program.

If you and your management have set goals and objectives for the program, you may have additional annual reporting requirements show-

"A future" Bill Kelly, Vice President, Research and Development, Electronic Office Systems Division



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How to Spotlight Your Training Activities

The following is a list of suggestions for increasing your department's visibility:

1. Distribute your education and training schedule as widely as possible.

2. Begin publishing an education department newsletter to be distributed to all key decision makers as well as your students and their supervisors.

3. If your budget permits, try to get a "special" or "name" instructor to come in at least once during the fiscal year. Make sure everyone in the DP department knows that this special speaker is arriving and also knows how difficult it was for you to obtain the services of this "name" instructor.

4. Whenever you bring in outside instructors, request that they provide a special luncheon talk of 20 to 30 minutes on a topic that is of general interest to the DP department. You can usually arrange this at no additional charge.

5. Subscribe to the various technical trade publications and read them. Whenever you come across an article that might be of interest to a particular department manager, make sure you send the article to that manager, and make sure that he knows it's coming from you.

6. Create anticipation concerning the activities you have planned for next year. Indicate the various special and existing programs you plan to provide "if the budget permits," and make sure that these announcements are widely published.

7. Volunteer for any activity that will give you high visibility, particularly if it does not require a great deal of your time. In short, use your ingenuity to spotlight in as many ways as possible all of the various functions your department is fulfilling.

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'Assuming that you need to continue selling management on the idea of an in-house training program, the concepts of how to make a sale are important.'

ing progress compared with goals. If your installation prepares individual training schedules, you can compare at year-end the projected time and dollars to the training that occurred. By summarizing these figures by group or department, you will be able to determine if there are some departments that require more attention from you in preparing and meeting their schedules.

Another reporting method is to contrast the cost of in-house training with the expense of educating the staff off-site. However, this does not indicate the cost of *not* training, and it's probably unrealistic to assume that a corporation would consider sending all of its staff to off-site classes. But this type of reporting is not unusual within the DP education community.

Industrial training literature often emphasizes the importance of statistically measuring improved performance as a result of training. Higher production rates in piecework jobs, however, are infinitely easier to substantiate than programmer productivity. The expense of collecting statistics to prove that employees who complete the job control language course require less computer time, for example, may not be justifiable (assuming that the data can be gathered and compiled).

If your installation provides information about the types of test results (compiles, JCL, execution), the number of production reruns and project overruns, you can consider setting up a control group or comparing pre- and postperformance to support the justification for the training program. Additional statistics that you may find helpful are:

- Percentage of staff time spent on training.
- Percentage of DP budget spent on training.
- External training expenditure per DP employee.
- Internal expense of training per DP employee.

If you decide to attempt further justification of the training function within your organization, you may also want to investigate the potential benefits of lower turnover, higher morale and increased productivity on a staffwide basis.

Comparing your data to industry trends can be an excellent method for analyzing your company's performance. A helpful source is the annual BSI Training Survey, published by Brandon Systems Institute in Bethesda, Md.

Selling Your Ideas

Assuming that you need to continue selling your management on the concept of an in-house training program, the concepts of how to make a successful sale are important. Stanley Winter, president of TSI Sales and Marketing, Inc. and an expert in the field of human communications, explains that there are four major elements involved. Each activity in each element must be successfully concluded in order to make that sale. These major elements are:

1. *Determining what you want.* Do you want more money? More space? More instructors? Better outside courses? Audiovisual equipment?

2. *Identifying the decision makers.* President? Vice-president of finance or administration? Director of MIS?

3. *Determining what each decision maker wants.* The vice-president of finance or administration is primarily concerned with corporate profits that would reflect an interest in either lowering costs or getting a higher return on investment. The director of MIS would be interested in increasing the productivity of the MIS department and in increasing the department's capacity.

4. *Making the sale.* Convincing the decision makers that what you are offering is what they want.

In order for you to justify your need for more space, money, instructors or audiovisual equipment, you and your department must be perceived to be extremely busy. This means you should create a high level of visibility for your departmental activities through the use of advertising, publicity, the sponsorship of special events and activities. Some specific suggestions are listed in the box on this page.

Having set the stage with a year of high visibility, you are now ready for your budget request. And if you have located all of the decision makers, successfully understood their motivations and objectives and your reporting presentations clearly show how you have fulfilled those objectives, your chances of a successful sale are excellent.

About the Author

Marthe Lawlor is vice-president of education services for Deltak, Inc. in Oak Brook, Ill., where she coordinates the activities of a nationwide network of education consultants who provide training services to Deltak's customer base. Under her direction, the Education Services Division assists customers in implementing and administering effective internal programs.

Prior to joining Deltak, Lawlor was an independent consultant who assisted her clients in establishing internal DP training functions. She has worked in DP since 1964 and began her DP training career at Time *magazine in Chicago, where she supervised the training function for several years.*

Compatible with IBM 3375

CDC Adds 1.63G-Byte Disk Subsystem

MINNEAPOLIS — Control Data Corp. extended its line of IBM-compatible disk products with the 33750, a 1.63G-byte disk subsystem that it said is compatible with IBM's 3375 disk drive.

The 33750 was developed primarily for use with IBM's 4300 line of processors running under the DOS/VSE operating system. It can be upgraded to an IBM 3380-type drive, however, to run in an IBM MVS environment, CDC said.

The drive attaches to the same storage control device that attaches to the firm's 33800 disk drive and offers an average seek time of 16 msec, a full-track rotation time of 16.7 msec and a data transfer rate of 3M byte/sec, according to CDC. It uses four independent head disk assemblies and was designed with thin-film read/write heads. The head disk assembly is sealed to provide isolation from outside contaminants, CDC said.

The 33750 is field upgradable to CDC's 2.52G-byte 33800 disk drive, the firm noted.

The 33750 has four actuators or read/write head arms per unit (double the capacity of the 3375). This reportedly increases the disk's average access speeds. CDC also offers a dual-access feature, which allows a string of up to 16 actuators to be addressed through two internal data paths. The dual-access feature can be used with short strings as well as short-string configurations, allowing two concurrent data transfers to occur in a string. The data transfers can also be overlapped, CDC said.

Dual Power Supply

Finally, the 33750 has a dual power supply that prevents loss of data on the entire disk drive if one director should fail. The unit is also equipped with an on-line diagnostic processor and a remote maintenance capability, CDC said.

The price of the 33750 ranges between $61,000 and $84,000, depending on configuration. It can be leased for $1,400/mo to $1,950/mo; monthly maintenance costs $200 to $250.

First customer shipments of the 33750 are slated for the fourth quarter of 1983, according to CDC, which can be reached through P.O. Box O, Minneapolis, Minn. 55440.

Two DEC Disk Drives, Controller Now Support Full VAX-11 Line

MAYNARD, Mass. — Digital Equipment Corp. has announced that its RA81 and RA60 disk drives and its DMF32 communications controller are now supported on all members of its VAX-11 superminicomputer line.

Announced June 7 for the VAX-11/750 as well as the PDP-11 series of minicomputers, the RA81 offers 205M bytes of formatted storage. The RA60, announced for the PDP-11/44, offers 205M bytes of formatted storage. The DMF32 intelligent controller was introduced in April as a standard feature on the VAX-11/730, according to DEC.

DEC is making available four packaged VAX-11/750 and VAX-11/780 systems which include the RA60 and RA81 disks. A VAX-11/750 with 2M bytes of main memory, two RA60 disks, a UDA50 controller (a total of 410M bytes of storage space), an LA120 Decwriter III terminal, a DZ11 communications controller and DEC's VMS operating system costs $110,000, according to DEC.

A larger VAX-11/750 configuration substitutes an RA81 drive for the second RA60 to provide a total of 661M bytes of disk storage. That configuration costs $115,000.

A VAX-11/780 configuration with 4M bytes of main memory, a DZ11 communications controller, an LA120 console terminal, VMS and two RA60 drives and a UDA50 controller costs $230,00.

With an RA81 disk drive, UDA50 controller and TU78 tape drive, it costs $284,000.

Configurations including dual RA60 drives will be available next spring. Delivery of the larger VAX-11/780 disk/tape configuration will begin by the end of 1982, DEC said.

RA81 and RA60 add-on subsystems with the UDA50 controller and cabinet cost $26,000 and $22,000, respectively. Additional disk drives are priced at $19,000 and $15,000, respectively.

Shipments of the RA81 are scheduled to begin in early 1983, and the first RA60 units are scheduled to be delivered in the spring of 1983. The DMF32 communications controller costs $3,995 and is slated for delivery in January.

An RA80 disk subsystem, a 121M-byte Winchester-type unit, is now available as an add-on device for VAX-11/730 systems. The subsystem comes with a UDA50 controller and costs $21,000. Additional drives cost $14,000.

The configuration will be available by year-end, DEC said from Maynard, Mass. 01754.

Previous Capacity Doubled

System 1000 Switching Bolstered

NORWALK, Conn. — Data Switch Corp. has upgraded its System 1000 solid-state peripheral switching system to handle up to 16 CPU channels and 48 peripheral ports, more than doubling the previous capacity.

The unit was designed to operate with IBM-compatible control units and peripherals. The enhancement reportedly offers up to six times the capacity of IBM's largest peripheral switching device and is geared to support such systems as IBM's 3084, which has up to 48 channels per processor, the vendor said.

The System 1000 has been tested at data transfer rates up to 8M byte/sec and can be controlled via a manually operated local/remote control panel.

In addition to the 16-channel/48-port configuration, users can also get a 16-channel/32-port and 16-channel/40-port configuration, the vendor said. Prices of the units are: $465,000 for the 16 by 32 configuration, $560,000 for the 16 by 40 configuration and $655,000 for the 16 by 48 port configuration.

The vendor is located at 444 Westport Ave., Norwalk, Cono. 06851.

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Wang Broadens Wangcare Program

LOWELL, Mass. — Wang Laboratories, Inc. has broadened its customer service program, Wangcare, with the introduction of system uptime guarantees.

The Wang Guaranteed Uptime program is available to Wang VS, OIS and 2200 customers who buy maintenance agreements or who receive Wang service on leased or rental systems. The program components are Wangcare Guarantee and the optional Wangcare Plus.

Wangcare Guarantee provides Wang maintenance contract customers, at no additional charge, a minimum uptime of 95% for each unit of the core system — CPU, memory and memory controllers, power supply, I/O processors, system disk devices required for Wang operating system software and master console workstation.

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Wang is located at One Industrial Ave., Lowell, Mass. 01851.

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Tartan Units Incorporate Data Capture

DALLAS — A data entry product that incorporates source data capture, document and transaction processing and error correction has been announced here by Recognition Equipment, Inc.

The Tartan Terminal System is comprised of microprocessors, portable software, distributed computing and networking capabilities, the vendor said. An unlimited number of terminals can operate on the system, each of which can maintain a separate operating system. Software packages include high-performance data entry for both batch and transaction processing, word processing, message queuing and various other Digital Research, Inc. CP/M-based packages.

A typical configuration of a basic unit, which includes redundant processors, 40M-byte disk, one 1,600 bit/in. tape drive, one 300 line/min. printer, 10 CRT terminals and 768K bytes of memory sells for approximately $100,000. Further details are available from Recognition Equipment through P.O. Box 222307, Dallas, Texas 75222.

Marine System 32-Bit-Based

FORT LAUDERDALE, Fla. — Gould, Inc. S.E.L. Computer Systems Division has announced a marine geophysical field data system based on a 32-bit processor.

Previously based on a 16-bit processor, the unit was only able to record seismic data aboard ships for later processing and analysis onshore. Now the seismic data can reportedly be transferred directly from a Texas Instruments, Inc. DFS-V data acquisition system to a Gould S.E.L. Concept 32/27 processor for real-time processing and data quality control.

The base price of the Gould system is $249,000 from the firm at 6901 W. Sunrise Blvd., P.O. Box 9148, Fort Lauderdale, Fla. 33310.

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Portable Drum Plotter Bows

AUSTIN, Texas — Houston Instrument, Inc. has announced a portable single-pen drum plotter that is said to feature pen speeds of up to 4.2 in./sec and a format size of 11 in. by 17 in.

The DMP-40 operates on a standard RS-232C interface and automatically generates circles, arcs, ellipses and general curves, a spokeswoman said. Five different character sets are resident in read-only memory, which may be presented normally or as italics in 255 possible sizes and 360 degrees of rotation. Eleven different line types are available, ranging from solid lines to variations on dotted and dashed lines.

The DMP-40 plotter costs $995 from Houston Instrument at 8500 Cameron Road, Austin, Texas 78753.

Versatec Wide Plotter Announced

SANTA CLARA, Calif. — Versatec Co. has announced a multimedia electrostatic plotter that can draw on 44-in. wide film and paper.

Designed for computer-aided design and manufacturing, seismic, mapping and business graphics applications, the 8244F can use opaque or translucent paper for preliminary drawings and then switch to more durable clear or matte-finish films for overlays, duplicating or plot production, the vendor said.

The unit comes with a line enhancement that doubles line thickness without reducing resolution. A mirror imaging feature enables creation of a mirrored plot for drawing on clear film, the vendor said.

The 8244F costs $56,200 from Versatec, 2710 Walsh Ave., Santa Clara, Calif. 95051.

Xerox Alters Printer Prices

EL SEGUNDO, Calif. — Xerox Corp. has raised the purchase price of its 9700 electronic printing system and 6500 color graphics printer by 3% and 13%, respectively. At the same time, the firm announced an 8% price cut and 15% lease price increase on the 5700 electronic printing system.

The 9700 was increased to $390,000. The machine now leases for $12,600/mo.

Xerox reduced the price of the fiche option for the 9700 system from $95,000 to $70,000. The lease price for that option was lowered from $2,950 to $1,950/mo.

The purchase price for the Xerox 6500 color graphics printer was increased to $39,000.

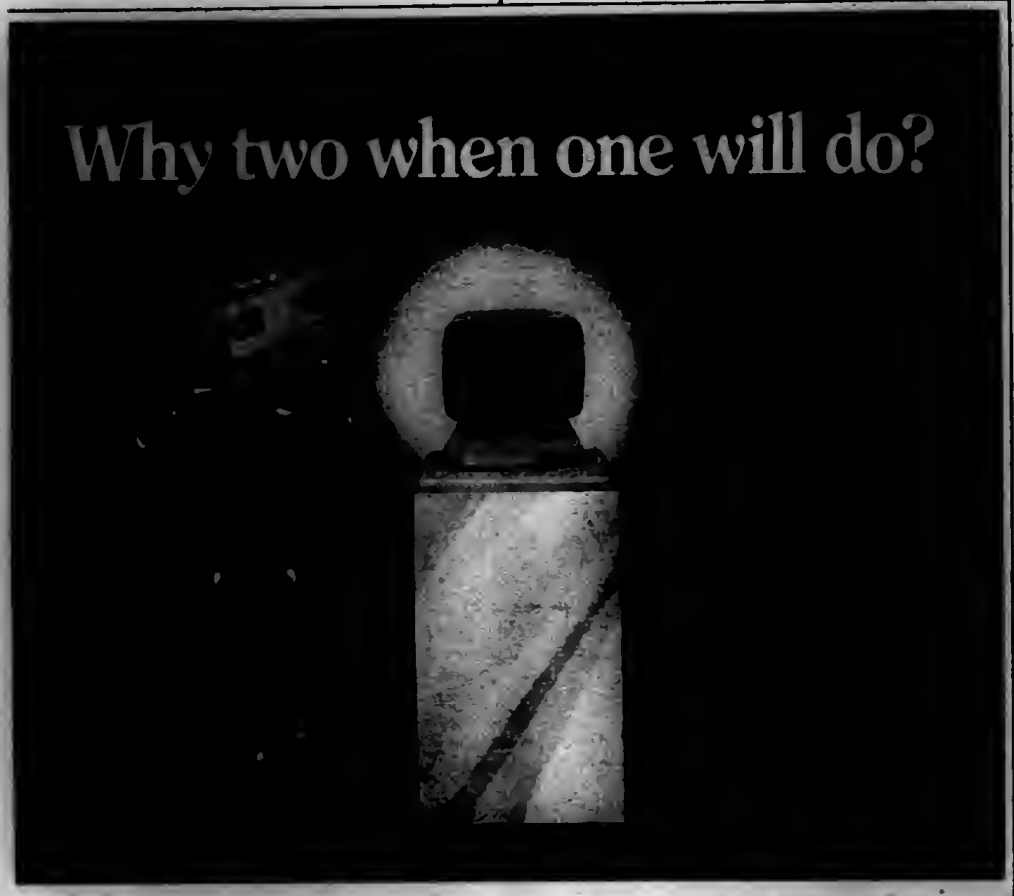
The purchase price for the 5700 printing system was reduced to $65,000. The system leases for $2,600/mo, the vendor said from 880 Apollo St., El Segundo, Calif. 90245.

Line Monitor Out from TII

COPIAGUE, N.Y. — A microprocessor controlled power line monitor has been announced by TII Electronics Division.

The GPM-P is said to feature continuous 24-hour power line monitoring and to print out confirmation of power outages, dips, surges, spikes and noise.

The unit costs $975, with quantity discounts available from the firm at 1375 Akron St., Copiague, N.Y. 11726.



Lee Data's universal terminal system design provides access to both 3270 and VT100 applications.

Now with Lee Data's new 3270/Async Communication System (Series 400) you can eliminate the cost and inconvenience of needing separate displays for access to 3270 and VT100 applications.

The Lee Data universal terminal system approach is another innovative Lee Data design that allows a single Lee Data display to access applications and data from an IBM CPU, a non-IBM system such as DEC, H-P or Prime, and timesharing services. And a simple command entered from the display keyboard is all that is required to switch from 3270 to VT100 operating mode and back again. What could be easier?

The Series 400 System incorporates a new hybrid approach to system operation that is simpler and more efficient than protocol conversion. This approach allows a Lee Data controller to provide dedicated 3270 and VT100 processors for concurrent, but independent application access.

In addition, a single Lee Data controller provides you 3270 compatibility via either a remote BSC or SNA/SDLC or a local SNA or non-SNA interface, as well as 1 to 16 RS232C ports for your asynchronous application needs. Line speeds available are from 300 to 19,200 BPS.

The Series 400 System also provides you support for up to 32 devices, including Lee Data's unique All-In-One display that offers dynamic selection of 4 screen sizes—three 80-column and one 132-column. Lee Data's 3279-compatible color displays and a full line of printers are also available as part of the 32-device complement.

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A quick review. 15% off list on most Memorex 3270-type communications peripherals. Up to 50% savings on most existing Memorex lease conversions. Taken separately, they are impressive numbers. Together, they make an even more compelling argument for picking up the phone and calling Memorex for more information. Call toll free (800) 538-9303. And in California call (408) 996-9000 Ext. 222.

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Portable System Offers Z80, CP/M

SOLANA BEACH, Calif. — Kaypro Division of Non-Linear Systems, Inc. has introduced a portable computer that features a Zilog, Inc. Z80 central processor, a Digital Research, Inc. CP/M operating system, 64K bytes of random-access memory, a built-in, 9-in. CRT screen with green phosphor characters in upper and lower case.

The Kaypro II business and personal computer is housed in a protective metal carrying case and features dual, double-density, single-sided disk drives that provide unformatted 200K bytes of storage. The detachable keyboard has sculptured keys, a 14-key numeric key pad and four-way cursor control.

The operating system includes special utilities to set the bit/sec rate of the serial port and configure the I/O ports. Interface accommodations include an RS-232C for a modem or other peripherals. Software from Perfect Software, Inc. is included in the base price and features a data base package, a word processing package, spelling package and spreadsheet.

The Kaypro II is available for $1,795 from the Kaypro Division of Non-Linear Systems, Inc., 533 Stevens Ave., Solana Beach, Calif. 92075.

Voice Recognizer Fits HP Series 80

DELRAN, N.J. — Threshold Technology, Inc. has announced a voice recognition system for Hewlett-Packard Co. Series 80 personal and business computer users. The system can be obtained for three months at an introductory price of $995.

The recognizer for HP is a modified version of Threshold's Auricle-1 model. Optimized for HP's 85, 86 and 87 computers, the Auricle device is a self-contained unit said to plug directly into standard IEEE 488 interfaces.

After Jan. 31, the price of the voice recognizer will rise to "around $2,480" for end users, a Threshold spokeswoman said.

Delivery is in 90 days, according to the vendor. Threshold Technology is located at 1829 Underwood Blvd., Delran, N.J. 08075.

Small Business Systems Extend Adds' CPU Line

HAUPPAUGE, N.Y. — Applied Digital Data Systems, Inc. (Adds) has introduced two small business computers, an applications program generator and word processing software.

The small business computers — the Mentor 3000 and the Mentor 5000 — are additions to the company's existing line of systems, which includes the Mentor 4000.

The Mentor 3000 is a 16-bit microprocessor-based system that operates under the company's Pick proprietary virtual memory operating system. It offers 30M bytes of 8-in. Winchester disk storage, built-in diagnostics and eight available user ports in its basic configuration, the vendor said.

The Mentor 3000, which is fully compatible with other Mentor models, is priced at $24,900.

The Mentor 5000 adds a 16-port user capability to the features of the 4000. It is available in either a single- or dual-disk model offering up to 150M bytes of storage or a single- or dual-disk version with up to 300M bytes of data storage.

The M5150, with 150M bytes of storage, costs $65,000, while the M5300, with up to 300M bytes of storage space, costs $79,000.

Adds also introduced word processing and application program creation capabilities for the systems using the Documentor WP package and Implementor applications generator, respectively. The Documentor software is available for $2,500. A WP workstation for the package is $1,500.

The Implementor is supplied free on all Mentor systems, Adds noted.

All of the announced products will be available in the first quarter of 1983. More information is available from Adds at 100 Marcus Blvd., Hauppauge, N.Y. 11788.

Controllers Offer Color Graphics For IBM Micro

MINNEAPOLIS — Two color graphics controllers for the IBM Personal Computer have been announced by Control Systems, Inc.

The Artist I meets industrial standards with 1,024 pixel by 1,024 pixel by 4 color plane resolution. The Artist II is designed for the business graphics market with a resolution of 640 pixels by 410 pixels by 4 color planes.

Both units are bit mapped, raster scan controllers and use the NEC Information Systems, Inc. 7220 graphics processor.

Artist I has a 170-col. by 96-line display in the text mode and storage for 262,000 characters. Character fonts are selectable from on-board read-only memory. Artist II has an 80-col. by 50-line display in addition to fine-line graphics. Artist II has up to 128K bytes of memory.

Artist comes with a C language library of commands currently running on PC-DOS and Quantum Software, Inc.'s Qunix operating systems.

Artist 1 costs $3,195 and Artist II costs $1,595 from Control Systems, 2855 Anthony Lane, Minneapolis, Minn. 55418.

Firm Cuts Price Of Matrix Printer

SALT LAKE CITY — Micro Peripherals, Inc. has reduced the price of its Printmate 99 dot matrix printer.

Standard features of the graphics 80-col printer include both tractor and friction-feed capability; 100 char./sec logic directed, bidirectional printhead and standard 1K-byte buffer, a spokeswoman said.

Options include a single-sheet paper feeder and 2K-byte buffer memory expansion. The Printmate 99 costs $695 from the firm at 4426 S. Century Drive, Salt Lake City, Utah 84107.

Two Band Printers Out For System/34 and 38

IRVINE, Calif. — Ampak Business Systems, Inc. has announced two band printers, the ABS 300 BP and ABS 600 BP, for IBM System/34 and System/38 processors.

The ABS 300 BP is a 300 line/min printer with a 64-char. band. The unit costs $7,495. The ABA 600 BP is a 650 line/min printer with a 64-char. band. It costs $9,250, the vendor said.

Ampak can be reached through P.O. Box 17494, Irvine, Calif. 92713.

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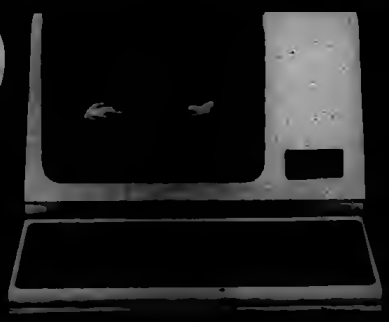

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Mini Bits

Expansion Frame Out for IBM Micro

SANTA CLARA, Calif. — RCS, Inc. has announced an expansion frame for the IBM Personal Computer which is said to provide six additional system slots.

The PCX-6 expansion frame is available with the following options: up to 192K bytes of additional memory in 64K-byte increments with Dynamic Parity Error Correction Circuitry (DPECC); two asynchronous serial ports; three parallel ports; a real-time clock and a heavy duty power supply to furnish power to a 5¼-in. Winchester disk drive, a spokesman said.

The proprietary feature of DPECC memory will detect single- or double-bit parity errors and correct single-bit errors without interrupting processing, the company claimed.

The basic DPX-6 costs $595 from RCS at 2116A Walsh Ave., Santa Clara, Calif. 95050.

Cart Control System Targets Hospitals

DAYTON, Ohio — The Standard Register Co. has announced a cart exchange control system designed to help hospitals and other health care institutions improve control over central supply items, inventory and distribution costs.

The microprocessor-controlled system uses bar code printed on pressure sensitive labels and other documents. The labels can also be read by humans, the vendor said.

The system includes a CRT terminal, disk drive and a 300 line/min dot matrix printer. Configurations cost between $35,000 and $60,000. The vendor can be reached through P.O. Box 1167, Dayton, Ohio, 45401.

Memory System Out For Apple III Micros

SUNNYVALE, Calif. — Axlon, Inc. has announced a 320K memory system for Apple Computer, Inc. Apple III microcomputers.

Called the Ramdisk, the memory system functions like one 80-track or two 40-track floppy disk drives. The unit features a slot-independent interface board which does not draw power from the processor during operation, the vendor said.

The Ramdisk costs $1,395, the vendor said from 170 N. Wolfe Road, Sunnyvale, Calif. 94086.

Power Conditioner Announced for Minis

CARSON, Calif. — Computer Power Systems Corp. has announced Micropower II, a power conditioner for minicomputers and small business systems.

The unit is designed to protect against electrical dips, spikes, brownouts, transients and voltage fluctuations. The unit is also said to provide voltage regulation and isolation features including load regulation, a high-low voltage detector alert and electronically-controlled tape switching, the vendor said.

The Micropower II costs between $1,800 and $3,800, depending on configuration. The vendor can be reached through 18150 S. Figueroa St., Box 6240, Carson, Calif. 90749.

Switch Links Apples To Centronics Printers

KEW GARDENS, N.Y. — Intra Computer, Inc. has announced a printer switch for Apple Computer, Inc. processors. The device allows Apple microcomputers to interface with Centronics Data Computer Corp.-compatible daisywheel or high-speed dot matrix printers.

The switch plugs into the interface cable from a single parallel board within the Apple processor to a connector on the rear panel of the printer switch. Each of the two built-in 6-ft cables from the switch are then attached to selected printers, the firm said.

The switch costs $150, the vendor said from 120-10 Audley St., Kew Gardens, N.Y. 11415.

Flexible Disk Line Unveiled by Omni

MILLBURY, Mass. — A line of 8-in. flexible disks backed by a five-year warranty has been unveiled by Omni Resources Corp.

Incorporating a surface formulation said to improve signal strength and resist wear, the disks reportedly are rated for 12 million passes without disk-related errors.

Prices range from $30 per 10-pack, with discounts available for volume purchases. Private labeling is available with minimums as small as 500. Omni is located at 4 Oak Pond Ave., Millbury, Mass. 01527.

Datafile Disk Drives Get 16M-Byte Version

PHOENIX — Thought Works, Inc. has announced a 16M-byte version of its Datafile line of disk drives for a variety of personal computers.

At the same time, the firm cut prices on its 5M- and 10M-byte drives and increased prices on its 20M-byte drives.

The 5M-byte drive now costs $2,495. The 10M-byte drive now costs $2,995. The 16M-byte drive costs $3,795, and the 20M-byte drive now costs $4,995.

The Datafile disk drives can operate with the Apple Computer, Inc. Apple II, the Radio Shack TRS-80 Model III and the Xerox Corp. 820 and S-100 bus systems.

Thought Works is located at 3532 W. Thomas Road, Phoenix, Ariz. 85019.

Pharmacy System Based on IBM Micro

FORT MYERS, Fla. — A computerized pharmacokinetics simulation and consult system has been announced by Medical Engineering, Inc. Pharmacokinetics reportedly enables physicians and pharmacists to assign dosages according to the physical characteristics of the patient.

The IBM Personal Computer-based package allows a clinician to complete a consult in about 20 minutes.

The package, including personal computer, printer, plotter and software, costs $15,000, the spokesman said from Suite 108, 2675 Winkler Ave., Fort Myers, Fla. 33901.

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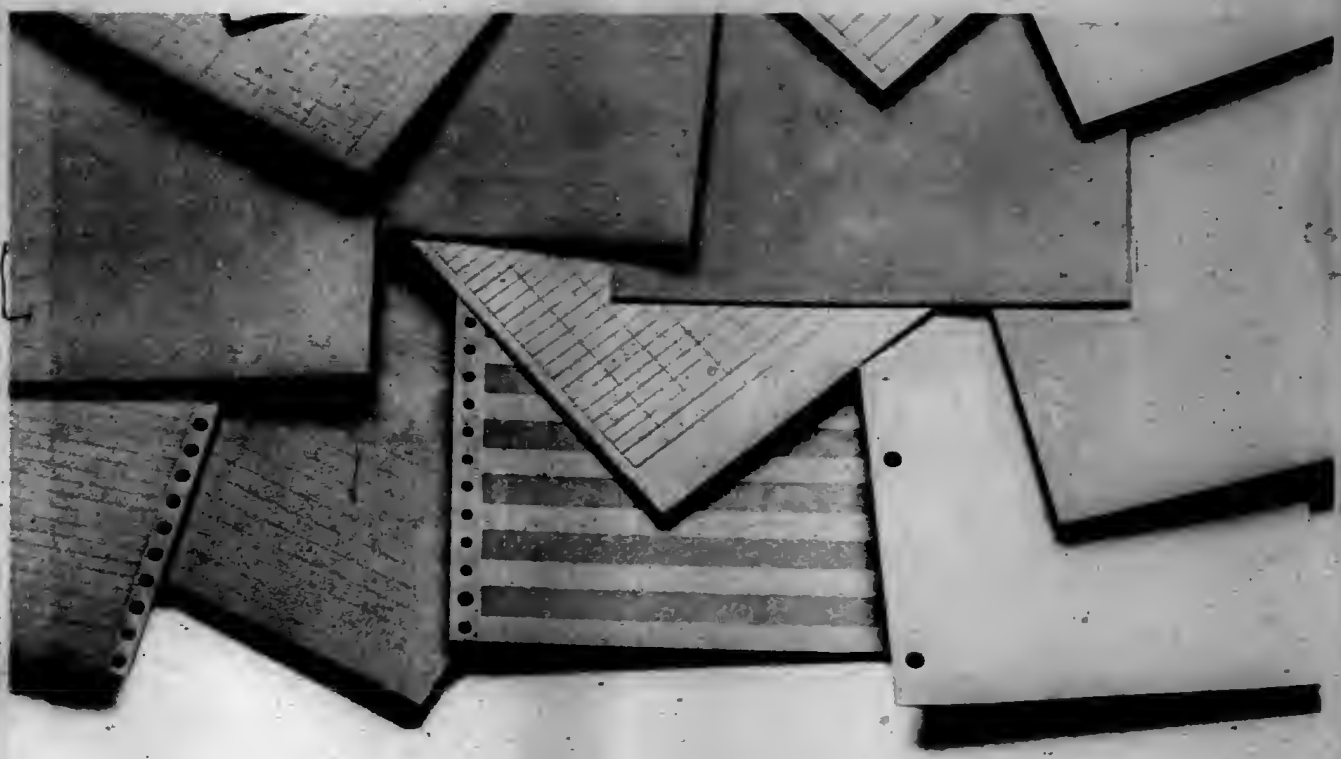

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Elements of Total Cost Ignored

Paper Claims OA Benefits Exaggerated

By Brad Schultz
Special to CW‡

IRVINE, Calif. — The DP community has exaggerated the benefits and discounted the costs of office automation, according to a computer scientist here at the University of California at Irvine.

In a paper he will soon deliver to the International System Sciences Conference in Hawaii, Robert G. Rittenhouse concluded that most studies of how office automation affects productivity have ignored many elements of total cost and ignored or distorted the value of what office automation does to an organization.

Productivity for a process is usually defined as the value of its outputs divided by the value of its inputs, Rittenhouse wrote. Most studies of office automation, he said, limit their definition of inputs to manhours of work by direct users, weighted by relative pay of each worker.

This ignores the capital that must be invested in office automation, as well as the costs of supporting personnel for the automated office, Rittenhouse observed. But besides hardware and software outlays, the costs of office automation include expenditures for operating personnel, software maintenance, data management, computer facilities and operations management.

The costs of computing are considerably higher than usually estimated and, contrary to what most office automation advocates claim, these costs are rising rapidly, the computer scientist declared. Most analyses of computing costs fail to consider such hidden expense factors as the staff time of individuals in areas peripheral to computing who must deal with disruptions in their work because of computing, he pointed out.

As for the outputs of office automation, Rittenhouse said that typical analyses have focused on simple quantitative measures, such as the number of pages typed by word processing centers. While office automation may allow more pages of text to be produced by word processing centers, it is "highly doubtful that the value of this flood of paper has increased commensurately," he remarked.

Moreover, it is much more difficult to quantify outputs for workers with relatively unstructured jobs, such as managers, Rittenhouse added. Many analysts have tried to meet this challenge by estimating time saved when technologies believed to waste time are replaced by office automation technology or have cited "intangible benefits" of office automation.

Rittenhouse said these intangible benefits "are weak bases for judgment and should not make up a major portion of the analysis [of office automation]."

Productivity Change

Rittenhouse's partial list of potential sources of productivity change due to office automation includes:

- Procedural changes, in which the organization of work, including methods and policies, are altered.
- Replacement of human labor, in which office automation technology allows machines to do work previously done by people, in some cases freeing personnel for new and perhaps more interesting duties.
- Changes in decision making, in which office automation may provide decision makers with more timely information, "will narrow the decision maker's view of the world to the information contained in the computer."
- Redesign of the milieu for jobs.
- Complex "side effects," such as changes in employee morale and the prospect that computer-based message systems will swamp users with electronic junk mail.

Rittenhouse's paper noted that the costs and benefits of office automation for the total organization are different from the costs and benefits for a particular department or group and those for particular individuals. Hence, plans to implement office automation systems should make clear precisely who or what the systems are expected to improve and how this improvement will be monitored.

Schultz, a former senior editor at Computerworld, *is now a senior editor at* Australasian Computerworld.

Compass Gets More Bubble, Gridterm Terminal Emulator

MOUNTAIN VIEW, Calif. — Grid Systems Corp. has introduced two enhancements to its portable 16-bit Compass computer decision support system.

The first enhancement is the addition of more nonvolatile bubble memory. The memory now available is 384K bytes, a 50% increase at no additional cost, the vendor said.

The second enhancement is an asynchronous terminal emulator called Gridterm. Gridterm can be configured by the user to connect to a variety of mainframes and minicomputers over standard telephone lines. With its increased storage capacity, Compass can reportedly store large amounts of information that have been retrieved via Gridterm from data bases and other informational sources.

Gridterm is available for $150. Compass is available for $8,150 from Grid Systems Corp., 2535 Garcia Ave., Mountain View, Calif. 94043.

Desktop System Targets Hospitals

REDWOOD CITY, Calif. — Product Associates, Inc. has introduced a hospital office automation system said to fully integrate the functions of word processing, file processing and communications.

The Reportwriter multiuser desktop system can be used by the radiologist in analyzing X-rays and can control the patient demographic information, report generation and billing listing. The turnkey system includes 10M bytes of Winchester disk storage, one data entry workstation and a printer.

A word processing package is also included.

The system is available for $18,950 from Product Associates, Inc., 465 Convention Way, Redwood City, Calif. 94063.

Scheduling Package Runs on Wang VS

WHITTIER, Calif. — Minicomputer Interactive Systems has introduced a message/calendar/scheduling package that runs on the Wang Laboratories, Inc. line of VS computers. The full-function software is said to give managers and office personnel a time-management facility for personal and interoffice use.

The Executive Secretary II features a corporate telephone directory and the ability to notify participants of a meeting. Each user can specify a status line to indicate if he is in, out or unavailable for calls. The package is said to allow the user to send messages and maintain a calendar.

Executive Secretary II costs $2,500 from Minicomputer Interactive Systems, P.O. Box 54, Whittier, Calif. 90608.

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Optional Modules Available

WP Package Out for IBM Series/1

WOODLAND HILLS, Calif. — Option/1 Systems has introduced a word-processing software package for IBM Series/1 said to feature a standard module for editing and printing features. Optional modules offer manuscript/text preparation, specification editing, math/accounting and spooling.

Among the features in the standard module are insert, delete, move and scrolling. There are also global replace, allocate, automatic wrap-around, load and save data files for editing. Standard printing features include left/right and top/bottom margin control, automatic pagination, right margin justification, automatic centering, automatic underline, bold print, column alignment and proportional spacing with appropriate printer.

The package is available for $4,500 from Option/1 Systems, 22102 Clarendon St., Woodland Hills, Calif. 91367.

Lexoriter Enhanced

VAN NUYS, Calif. — Lexor Corp. has announced letter-merge and phrase-file enhancements to its Lexoriter Series III typewriter add-on word processing unit.

The letter-merge feature allows users to merge letters with an address list. The feature inserts the inside address and salutation. The feature also inserts any number of variables within the body of the letter, the vendor said.

The phrase-file feature allows storage of up to 100 phrases, which can be any length. The file can contain up to 32,000 characters, the vendor said.

The Series III costs from $2,100, the vendor said from 7100 Havenhurst Ave., Van Nuys, Calif. 91406.

Card Ties Micros, Pointing Device

PITTSBURGH, Pa. — Random Access, Inc. has introduced a decoder/interface card said to allow a Hawley Mouse pointing device to be used with personal computers from Apple Computer, Inc., IBM and any S-100 personal computer.

When joined by the decoder/interface to a personal computer, the mouse moves the cursor on a computer display screen in direct proportion to its own movement. The mouse can be used for transferring drawings to the computer or will move the cursor directly to any point on the display screen.

The decoder/interface card is available for $650 from Random Access, 246 Highland Road, Pittsburgh, Pa. 15235.

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'Palantir' Upgraded

HOUSTON — Designer Software has introduced an upgrade to its Palantir word processing software for computers using the Digital Research, Inc. operating system, CP/M. In Release 1.1, the software now has a series of commands, called Mailout, which is said to give it the ability to generate form letters.

Originally intended as a separate package, Mailout has been incorporated into Palantir itself. Any user with the earlier version of the package can receive the upgrade for $25.

The new release of the word processing software has a suggested retail price of $450. Designer Software is located at Suite 718, 3400 Montrose, Houston, Texas 77006.

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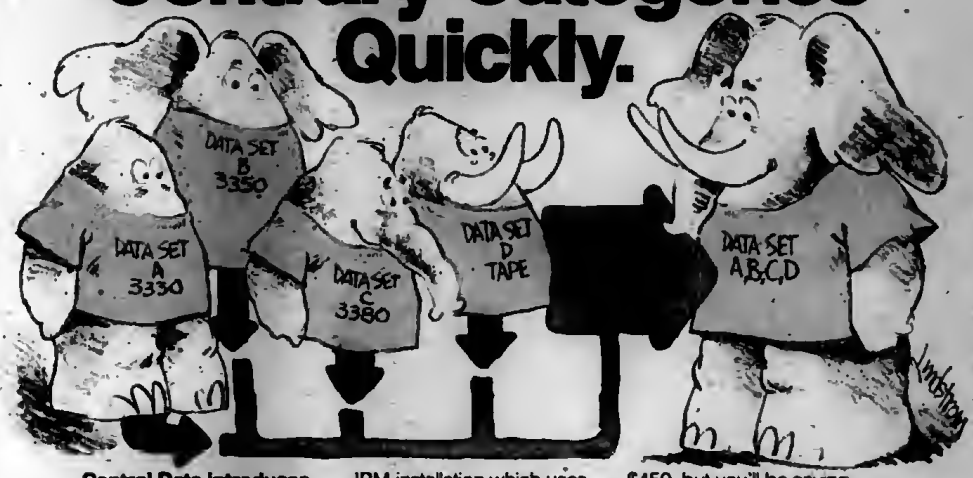

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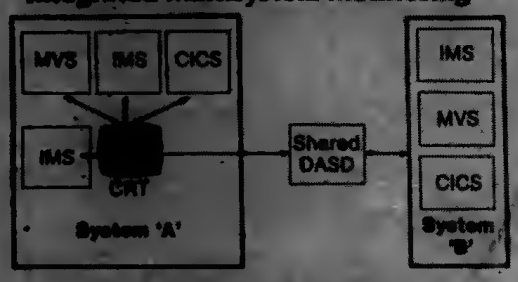

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CI Notes

Iran Pays Sperry Univac $2.8 Million Settlement

BLUE BELL, Pa. — The government of Iran has paid Sperry Univac $2.8 million in full settlement of claims made by the company.

The payment was pursuant to an agreement entered by the Iranian/United States Tribunal at The Hague, Netherlands, in September. The agreement resulted from negotiating sessions involving Univac and the High State Council of Informatics of Iran.

Univac was the 10th American company to receive an award since the overthrow of the Shah in 1979.

Jury Exonerates Villers

BOSTON — A Middlesex County Superior Court jury has decided that Automatix, Inc. President Phillipe Villers did not steal corporate secrets from his former employer, Computervision Corp., when he left the firm to form his own company three years ago.

Computervision sued Villers claiming that he used his former position as senior vice-president of the computer-aided design and manufacturing firm to gain access to secret company information.

Computervision further charged that Villers used that information when he started Automatix, a robotics firm.

Tandem Revenues Up

CUPERTINO, Calif. — Despite ailing domestic and international economies, Tandem Computers, Inc. has reported a 40% increase in earnings and a 61% gain in revenues for fiscal 1982.

Investors earned 95 cents per share on net income of $37.28 million, up from $26.54 million in 1981. Per-share earnings reflect Tandem's 3:1 stock split at the start of fiscal 1982.

Tandem's profits also reflect in part the impact of President Ronald Reagan's tax-cutting initiatives. The company paid the same amount of income taxes — $24 million — in both 1981 and 1982, although the company earned $10 million more in 1982.

Revenues advanced to $335.9 from almost $208.4 million the previous year.

Tandem shipped nearly 1,700 processors during the year, a 67% increase over 1981.

CW Photo by B. Laberis

Burroughs Corp. Chairman W. Michael Blumenthal, who keynoted last week's Adapso conference, answers a question while Senator-elect Frank Lautenberg listens.

Lautenberg Promises to Back High-Technology Concerns

By Bill Laberis
CW Staff

SAN DIEGO — "While I can't go to the Senate as a captive of any one group," said U.S. Senator-elect Frank Lautenberg (D-N.J.), "count on me, guys."

With those words and a theatrical wink, Lautenberg drew long applause from attendees at the Association of Data Processing Service Organizations, Inc.'a (Adapso) 22nd annual meeting here last week.

Just a week before, the 58-year-old president and founder of Automatic Data Processing, Inc. (ADP) of Clifton, N.J., had successfully capped a dark-horse campaign, defeating incumbent Republican Millicent Fenwick for the Senate seat. It took Lautenberg, a Democrat and son of an immigrant mill worker, just three months to close a 28-point gap in what was regarded as one of the recent election'a more notable upsets.

In an interview during the Adapso meeting, Lautenberg promised to carry to the Senate a philosophical blend of faith in the free enterprise system and "a profound belief of what government should do to help people get jobs." En route to Washington, D.C., Lautenberg will soon relinquish his key role at ADP.

(Continued on Page 82)

Adapso Tables Action Against CPAs, IBM

By Marcia Blumenthal
CW Staff

SAN DIEGO — Although competition from certified public accounting (CPA) companies and IBM continues to be a major concern for the Association of Data Processing Service Organizations, Inc. (Adapso), the organization voted against taking specific actions against these competitors during its management conference here last week.

The conference also saw heated discussions about IBM's extension of the Small System Executive (SSX) to its 4331 and 4341 systems. IBM introduced the SSX for its 4321 processor reasoning that users of that system were generally unsophisticated and had no in-house DP staff.

Adapso members view SSX, a 14-product offering, as a return to the practice of bundling software. Although

(Continued on Page 82)

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Oppenheimer Cites New Products

IBM Seen Escalating Its Part in Mainframe Wars

By Bob Johnson
CW New York Bureau

NEW YORK — IBM's 3084 processor is another weapon aimed at extending its market share battle lines in the mainframe "computer wars," according to a series of industry reviews released here recently by Oppenheimer & Co., Inc.

Citing a deluge of product announcements made by IBM for the mainframe market, the reports stated that all indications point to the company attempting to maintain and even enhance its position as the leader in the mainframe market.

"In the last two years, IBM has clearly accelerated the rate of new product anouncements in the large-scale processor sector. The product deluge includes high-density disk drives, new system architecture, operating software and an extraordinary variety of input and output devices," the reports said.

In addition, the reviews pointed oot that over the long term, IBM will utilize its personal computers, word processing equipment and installed terminals to access data bases in networks controlled by its mainframes, furthering its dominance.

Learning Curve Benefits

As a result of the introduction of the 3080 series of computers with their extended architecture, circuitry packaging in thermal conduction modules (TCM) and operating software, IBM has been provided with "learning curve benefits" in this large-scale processor market, Oppenheimer said. These benefits will allow IBM to make design changes as early as 1984, at just the time when most of its competitors begin volume production of their own large-scale processors, the reviews predicted.

"Keeping up with IBM's mainframe product cycle is now an extremely difficult task. Survivors in this market sector will find it necessary to serve only their respective customer bases, broaden software offerings and adopt IBM's communications/network standards," one study emphasized.

However, IBM itself — in order to preserve its own profitability and future growth — will have to diversify and make available other products for the mainframe area.

According to the reports, IBM is expected to:

- Introduce a more powerful range of mainframes as early as 1984, which would use an emitter-coupled or current-steered logic form (as opposed to transistor-transistor logic) packaged in a TCM to remove heat rapidly. It is also expected to come out with microcoded, special-purpose processors with ease-of-use features and with networks of communicating CPUs as part of an evolutionary process to lock in customers.
- Extend its Personal Computer line in 1982-1983 so that the microcomputer can function as a communications terminal.
- Announce its ring-based, token-passing local-area network early in 1983. "This system will at first use existing shielded twisted-pair cables which, together with an IBM Personal Computer or workstation and a [private branch exchange], will eventually allow users to reduce dependancy on Bell system voice equipment. A broadband adjunct to IBM's [local-area network] could then be introduced in late 1983 or 1984, which would allow for video and high-speed data transmission," Oppenheimer said.
- Add commmunications functions to all small-scale processors on a regular basis. Networks could then be driven and controlled by such large-scale CPUs as IBM's 50 Mips machine, which is expected in 1985.

Special-purpose hardware for processing complexes aimed at reducing programming complexity in next-generation mainframes was also forecast by Oppenheimer.

The introduction of next-generation disk drives utilizing vertical recording techniques is also expected by mid-decade.

Finally, a "gap-filler machine" to fit between the 4341-2 and the new 3083E is probable early next year, Oppenheimer said. The reports predicted that the older 3033S machine would be discontinued at that time and eventually mid-range mainframes will be given extended architecture capabilities offering the user excellent stand-alone capabilities.

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Tektronix, Issco Ink Marketing Pact

BEAVERTON, Ore. — Tektronix, Inc. has announced an agreement whereby the company will offer the Tell-A-Graf and Dissplа graphics packages from Integrated Software Systems Corp. as part of its Solution Directed Marketing Program.

Introduced in April, the program was designed to make users of Tektronix's graphic's equipment aware of compatible application software available from third-party vendors.

Tektronix can be reached through P.O. Box 500, Beaverton, Ore. 97077.

Magnuson Turning to Private Sources for Help

SAN JOSE, Calif. — Magnuson Computer Systems, Inc. is turning to private sources in an effort to save the financially troubled company. The firm has proposed a plan that will give a group of private investors a 51% share of the company.

The new bail-out plan is a revision of one presented last March that involved a group of private investors and the Bank of America.

According to the March plan, the Bank of America was to restructure a $21 million secured loan to Magnuson, and the private investors were to fund a $5.2 million placement of stock.

No Restructuring

Recently, however, the Bank of America decided not to restructure the loan. It cited concerns that Magnuson would not be able to generate enough cash to fund a restructured debt program, according to Magnuson President Charles S. Strauch.

Under the latest plan, the group of private investors will purchase the Bank of America's $21 million secured loan for $2,250,000. The group will then convert $15 million of the loan to five million shares of Magnuson common stock and five-year warrants to issue 7,820,153 shares of Magnuson common stock at $1.17 a share, according to Magnuson.

For the $6 million balance of the loan, the investor group will transfer $2 million of the warrants to the Bank of America. The balance of the loan is due in March of 1984, Magnuson said.

In addition, the investors will supply $1 million for Magnuson to fund its vendor debt satisfaction program. With the $1 million, the investors will buy shares in a newly formed company, the Magnuson Finance Co., which will function as a subsidiary of Magnuson. The Magnuson Finance Co. was formed to help customers finance Magnuson's line of IBM-compatible processors.

All the transactions, as well as the vendor debt satisfaction plan, were contingent on each other.

IBM Selected For IIR Net

WHITE PLAINS, N.Y. — The Insurance Institute for Research (IIR) has selected IBM's Insurance Communication Service to establish a communications network linking agencies, companies and the service organizations with which the insurance firms do business, it was announced recently.

IIR is supported by both the Independent Insurance Agents of America and the Professional Insurance Agents as well as 24 of the leading property and casualty insurance companies.

The IBM service will speed communications between agents and insurance companies and feature a variety of automation capabilities via the network's automatic switching features, designed to allow a variety of computers and mainframes to communicate.

The system will also feature interoffice and intercompany communications capability, immediate delivery of messages and the capability to store messages for later scheduled or on-command delivery and 24-hour, seven-day-a-week service.

Within six months, the system will have the necessary standards in place for handling more than 80% of the transactions between agents and companies.

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Seeks 20% Market Share

Sytek President Strong on Localnet's Potential

By Bruce Hoard
CW Staff

SUNNYVALE, Calif. — Dr. Michael S. Pleiner, president of Sytek, Inc., leans forward in his chair and taps the keyboard in his corner office. He is anxious to demonstrate how his product, Localnet, is linking the Sunnyvale corporate offices with the manufacturing, engineering and research and development facilities in nearby Mountain View.

After a few hunt-and-peck keystrokes, he gets a connection. "It really is a local-area network," he proclaims enthusiastically.

One of two local-area networks, to be technically correct. Sytek, which was founded by Pleiner and his associates in 1979, currently offers the Localnet 20, which features transfer rate of 128K bit/sec over 40 potential broadband cable channels, and Localnet 40, with data rates of 2M bit/sec over a maximum of five channels.

Pleiner and friends started Sytek after he got tired of building systems instead of products at Ford Aerospace and Communications Corp. The entrepreneurs wanted to sell their knowledge to others "in a way that we could get some more recognition from the outside world," he said.

They started out by doing consulting. Ironically, their first contract was with Xerox Corp., now a competitor. "Xerox put us into business — even though they might not agree," he said.

By the end of that first year, the new company had earned $1.7 million in revenues and assembled 30 employees. Those initial earnings were plowed back into research and development for a local-area network and, seven months later, Localnet was the end result. According to Pleiner, there are now 185 Localnet installations encompassing about 12,000 ports. The number of employees has risen to 160 and 15 more are being added each month.

The president refused to comment directly on last year's earnings, saying obliquely, "People say the market is $120 million and I'd be happy with 20% of that and I think we can get there. We're meeting our business plan."

They are meeting that plan by selling broadband local-area networks to a diversified clientele. Fortune 1000 companies, universities and government agencies together account for about 70% of their sales, while medium-size companies with high DP requirements account for the other 30%.

Buying Local Nets

Asked when potential users will be satisfied with the current state of local-area network technology and start buying it in large volumes, he replied, "I see that happening now." Customers are starting with a $50,000 "starter kit" and then making major purchases, he said, adding that of the 150 Localnets installed, approximately 30 have between 200 and 300 nodes.

Pleiner noted that Sytek has not been adversely affected by the slumping economy. "I don't think it's affected our sales at all," he commented. "We've been growing at at least 100% per quarter for the past five quarters."

He admitted that local-area network technology is flawed by its inability to interface with nonstandard hardware protocols, asking, "How many protocols can you provide?" Getting high-speed data into a large host processor is also a problem because it is necessary to write software on the host, he said.

Ken Biba, Sytek vice-president of development and a co-founder, compared local-area networks with private branch exchanges (PBX). Biba said that putting data over PBXs has been "very difficult" and the maximum data rate attainable over the twisted-pair cable used by PBXs is 56K bit/sec.

PBX's Weakness

Biba cited the central switching capability of PBXs as a weakness. In addition, he questioned their ability to handle videotex services, which he said, have a "dramatic impact on the size of switching capacity."

Pleiner was particularly excited about what he referred to as "Metronet." Metronet is a creation that arose from the marriage of Sytek and General Instrument Corp., which invested $6 million in Sytek last year. General Instrument is known for its expertise and experience in the areas of semiconductor and cable television (CATV) technology.

Together, the two firms hope to capture the lion's share of the blossoming intracity commercial and residential communications market. Pleiner is anxious to demonstrate the videotex package. The problem is that Sytek employees are using all available lines to the CPU it is stored on. He and Biba try to circumvent the users. No luck. Finally the television screen lights up with a high-resolution image of a city at twilight. It is Sytek's city of the not-too-distant future.

Distributed data processing with a network of IBM small systems

Ace Hardware speeds up software development, nails down information.

It takes the right tools to build a distributed data processing system that provides up-to-date information out in the field, while maintaining central-site control. Ace Hardware Corp. found the answer in a network of IBM small systems.

An IBM 8100 Information System in each of Ace's regional distribution centers has compressed the time it takes to process orders, while expanding both warehouse and programmer productivity. The 8100s are tied through phone lines to a host IBM 3033N in Ace headquarters in Oakbrook, Illinois. Ace—the second largest chain of retail hardware stores in the U.S.—is a coopera-

Olsen Sees DEC Earnings Slump to Continue

CW Photo by B. Laberis

DEC has no plans to lay off any workers, DEC President Kenneth H. Olsen said recently.

By Bill Laberis
CW Staff

BOSTON — It will come as "no great surprise" if Digital Equipment Corp.'s earnings dip for a second consecutive quarter, DEC President Kenneth H. Olsen said here recently.

Speaking at the company's annual meeting, Olsen offered shareholders the obvious: The company's short-term earnings destiny is intimately linked to the performance of the national economy, and that performance is continuing sluggishly at best.

Many of DEC's customers are large companies "that were immune to the early recessionary effects," Olsen said. Now "even the very large companies have canceled projects they never thought they'd cancel."

One result of this recessionary backlash was the minicomputer manufacturer's first earnings decline in seven years, reported for the first quarter of fiscal 1983, with another profit slide now predicted for the second quarter.

Olsen declined to speculate how the second quarter drop would compare to the 36% decline in profits reported last month. He also declined to speculate on when the company's recently imposed hiring freeze would be lifted, but did indicate that DEC has no plans to lay off any workers.

Focusing on brighter news for shareholders, Olsen said that DEC is on target with production and marketing plans for its personal computer. The new machines "will be pouring out" to the marketplace by winter's end.

Olsen further projected that DEC "will suffer from too much demand" for its personal computers when they hit the market en masse.

Asked if he thought DEC was somewhat late in entering the personal computer market, Olsen said that, until recently, the company lacked adequate resources to develop, produce and market the low-end systems. DEC financial planners have acted conservatively in gauging market trends, he suggested, adding that DEC has wanted to steer clear of the home computer and games market.

And in answering critics who claim DEC was late in jumping into the exploding office automation market, Olsen boasted, "We're not late. We own that market."

DEC, he said, has recently shuffled some senior managers to form a corporate task force charged with devising a strategy to capture a larger share of the white-collar office automation market. The company's personal computer will ostensibly be a cornerstone of this move.

Mergers & Acquisitions

Gould, Inc. has signed a letter of intent to purchase **Dexcel, Inc.**, a Santa Clara, Calif.-based designer and producer of gallium arsenide field-effect transistors and microwave integrated circuit products.

Logicon, Inc. has reached an agreement in principle to acquire **R&D Associates (RDA)**, a Marina del Ray, Calif. firm, through the issuance of .76 shares of Logicon stock for each share of RDA stock. RDA will become a wholly owned subsidiary of Logicon after the transaction.

Timesavers, Inc., Sunnyvale, Calif., has acquired **Office Information Resources**, a Santa Clara-based training and resource center which offers instruction in word processing and career planning.

NSA, Inc. has signed an agreement to acquire a controlling interest in **Interactive Information Systems, Inc.** of Reading, Pa. Terms of the agreement were not disclosed.

Cogito Corp., Princeton, N.J., has acquired the education business of **Sysco, Inc.** of Westwood, N.J.

tive acting as a wholesaler to 4,000 independent retailers.

Perfect Fit

"The IBM 8100 fit perfectly into our long-range information strategy," says Jim Van Wert, Director of Information Services for Ace. "We've been committed to a network tightly controlled from the host site, yet at the same time, able to provide support to our end users. Distributed data processing via the 8100 has accomplished all our objectives, and more."

Van Wert points out that Ace wanted a distributed system that would permit central development of remote application programs, rather than placing DP staff in each warehouse. Ace also wanted to assure the integrity of information at the warehouses through backup at headquarters.

Dramatic Gains

"The 8100 has not only met those requirements," Van Wert reports "it also helped programmer productivity to the point where it took half the expected time to write applications and bring the programs on line.

"We demand the same high degree of service from the companies we deal with as our dealers expect from us. With IBM, we've always received it, from the excellent people who helped us develop the applications to the service representatives across the country who can get there fast if we need help.

"Distributed data processing was waiting to happen at Ace. The 8100, made it happen."

To learn how IBM small systems can help put distributed processing on your map. Write IBM, 7AG/522 Dept. OA171, 400 Parson's Pond Drive, Franklin Lakes, NJ 07417. Or call, toll free, 1 800 631-5582, Ext. 90. Alaska and Hawaii 1 800 526-2484. Ext. 90.

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Court Backs MAI's Bid To Halt Software Changes

BOISE, Idaho — The U.S. District Court here has ruled that Management Assistance, Inc. (MAI) has the right to protect its software against unauthorized modification, even if that protection means threatening users with lawsuits or curtailment of maintenance.

The court decided Oct. 18 not to issue the preliminary injunction sought by Hubco Data Products Corp., maker of plug-compatible memory and peripheral enhancements for systems manufactured by MAI's Basic Four Information Systems Division. Hubco sought to stop MAI from threatening Hubco customers with loss of MAI maintenance and possible legal action for using the Hubco upgrades.

The Hubco upgrades make unauthorized alterations to the Basic Four Boss operating system, MAI contends, which make it impossible to continue to maintain the operating system. Hubco admits it alters Boss, but the firm, as well as some Hubco users, contend the changes made are identical to those made by MAI when making similar upgrades.

The court decision is part of an ongoing legal battle between MAI and Hubco [CW, Sept. 6]. MAI has filed suit against Hubco charging the firm with stealing trade secrets about the Boss operating system. Hubco, which says it developed its Basic Four enhancement products legally, has charged that MAI has violated federal antitrust laws by trying to stop Hubco from selling its upgrades.

Hubco had sought the injunction to suspend what it claims are reprisals against Hubco customers until the court decides whether MAI has in fact violated antitrust legislation.

Orders & Installations

Trevenol Laboratories, Inc., has ordered application software tools from Tominy, Inc. for use as the foundation software in the development of a wide range of medical application packages.

Sigma Software, Inc. will install its pension administration software programs for Wang Laboratories, Inc. Series 2200 small business computers in the home office and nine major branches of Northwestern Mutual Life Insurance Co., Milwaukee.

MDS Qantel will supply Hammermill Paper Corp. with its business computer systems for use in 31 distribution offices of Hammermill's Western Paper Division.

Sperry Univac recently obtained five annual licenses of the computer performance package, Snap, from LeRoux International, Inc. of New Bedford, Mass.

Continental Casualty Co. of Chicago has signed an eight-year contract to use four Policy Management Systems Corp. software packages. The vendor anticipates revenues in excess of $6 million over the life of the contract.

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Toxic Waste Cleanup to Cost IBM $2.2 Million

By Paul Gillin
CW Staff

WASHINGTON, D.C. — IBM and 23 other companies have agreed to pay $7.7 million toward the cleanup of an abandoned hazardous waste dump in Indiana, the Environmental Protection Agency (EPA) has announced.

In a consent decree filed in U.S. District Court in Indianapolis, IBM said it will pay $2.2 million to remove more than 60,000 drums of hazardous waste from the Seymour Recycling Site in Seymour, Ind. IBM's share of the cleanup is more than twice that of the next biggest contributor, General Motors Corp. ($1 million).

The Seymour site was one of the largest hazardous waste facilities in the country, the EPA said. It was operated as a chemical reclamation, storage and treatment site from 1969 until 1980. The dump was closed then by the Indiana State Board of Health for waste disposal violations.

Cleanup Costs

The Seymour Recycling Corp., which operated the site from 1976 to 1980, is currently in receivership. The EPA said it has been unable to recover any of the cleanup costs from the former operators.

"Some 340 other companies were involved in dumping at the site," said Ruth Brown of the EPA's public affairs office. "Hopefully, these companies will agree to a supplementary consent decree for the additional costs." The EPA plans legal action against companies that do not volunteer to share the costs, she said.

A spokesman for IBM said that from 1972 until early 1978 the company used the site for dumping solvents and magnetic film sludges from its manufacturing facilities in Lexington, Ky., Boulder, Colo., and Green Castle, Ind.

When IBM learned that improper dumping was going on at the site, the company ceased doing business with Seymour Recycling, the spokesman said. After a fire at the site in 1980, IBM removed the drums it could identify to an incinerator in Eldorado; Ark., at a cost of $1.2 million, he noted. However, it is impossible to determine how many of the remaining chemicals came from IBM.

"IBM had been a major user at the site and we agreed to pay what we felt would be proper," said Edgar Russell, manager of communications for IBM's Real Estate and Construction Division in Tarrytown, N.Y.

Waste dumping operations from the three IBM plants have since been contracted with four companies for disposal in various locations around the country, Russell said. IBM uses 19 sites nationwide for incinerating or burying wastes.

Wastes found on the site include heavy metals, cyanides, chlorinated solvents, acids, bases, phenols and explosives, the EPA said. Many of the drums are damaged and leaking, posing a substantial fire hazard, the agency noted.

The EPA said highly toxic and reactive chemicals were spilled indiscriminately at the site and allowed to reach surface and ground water. A residential area is located one-half mile from the facility but no adverse health effects have been noted in the community, according to Charlotte Sellers, a reporter for the *Brownstown Banner*, a local newspaper. However, some cattle reportedly died after drinking from a stream near the site, she said.

Sellers said a former employee of the company told her the facility's operators routinely dumped and burned hazardous wastes at night to avoid detection.

"The $7.7 million will clean up the 60,000 drums, but we still expect to have some ground water contamination," according to Karen Evans, section chief in the Resource Recovery and Planning Section within the Division of Land Pollution Control at the Indiana Board of Health. "We can then determine what pollution is in the surrounding soil and ground water."

Other companies involved in the settlement include GM, which will pay $1 million, Du Pont Co., $682,000, and General Electric Co., $665,000. Twenty other companies will pay smaller amounts, the EPA said. In exchange, they will not be liable for any further costs of the cleanup, which the EPA estimated could ultimately top $30 million.

Nickels & Dimes

Altos Computer Systems, Inc., San Jose, Calif., has announced a public offering of 3.3 million shares of common stock at $21 per share. The underwriting group managing the offering includes L.F. Rothschild; Unterberg, Towbin; and Robertson, Colman, Stephens and Woodman.

$ $ $

CSP, Inc., Billerica, Mass., plans to register a secondary public offering of up to 700,000 shares of common stock by prospectus in December. Dataram Corp. of New Jersey, holder of approximately 29% of all outstanding CSP shares, expects to participate in the secondary offering by selling a portion of its holdings.

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Supershorts

Four-Phase Systems, Inc. has received X.25 software certification in West Germany through its European distributor, N.V. Philips' Gloeilampenfabrieken, which is based in the Netherlands. Four-Phase Systems received certification at Levels 2 and 3.

— — —

Braegen Corp.'a multitask terminal system manufacturing operation in Cupertino, Calif., will be consolidated with other company manufacturing operations in Anaheim, Calif. Company President Paul Klein said that the consolidation, combined with management changes, will allow Braegan to take advantage of increased product demand and to increase research and development expenditures.

— — —

Data General Corp. has established Data General Australasia with headquarters in Sydney, Australia. John Dougall has been appointed general manager of the new organization, which will have responsibility for marketing operations in Australia, New Zealand and Asia.

— — —

Hewlett-Packard Co.'a Business Computer Group has shipped its 10,000th HP 3000 business computer. The recipient of the computer was a Volkswagen of America dealer in Houston, where the computer became the 29th in a network of HP 3000s. Sales of the HP 3000 are running 30% ahead of last year, according to a company spokesman.

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Prime Computer, Inc. has formed a wholly owned subsidiary to market and service its computer systems in Switzerland. Prime Computer Services AG, headquartered in Zurich, will replace Prime's former Swiss distributor.

— — —

CMP Communications, Inc. of East Brunswick, N.J., has formed a high technology marketing group that will provide marketing services for manufacturers and distributors of computer hardware, software and related products.

— — —

The Information Industry Association will confer its Hall of Fame Award on Dr. Roger K. Summit, president of Dialog Information Services, Inc., at its 14th annual conference this month. Summit, a member of the organization's board of directors since 1976, is known for his pioneering work in information retrieval. He was the designer and project manger for the Dialog on-line Information retrieval system at its inception in the early 1960s and has continued as its manager.

— — —

Digital Research, Inc. has formed the Graphics Products Group as part of a move into the microcomputer graphics software market. The first product from the group is GSX, a graphics extension system for the CP/M operating systems.

— — —

Altos Computer Systems, Inc. has appointed TRW, Inc.'a Customer Service Division as its exclusive maintenance service representative in the U.S. Beginning Dec. 1, TRW will service customers in 11 locations, with an additional 19 locations to be added by Jan. 3.

— — —

Tymshare, Inc. and Iconix Corp. have signed a marketing agreement to provide enhanced graphics services to Tymshare users. Using office terminals, users will input data through a Tymshare data base management system. Specifications will be transmitted via Tymnet, Tymshare's data communications network, to Iconix's Image Output Service Center in Cupertino, Calif., where 35mm slides, overhead transparencies or paper copies will be produced.

— — —

Michigan Medical Services, Inc., a wholly owned subsidiary of Blue Cross and Blue Shield of Michigan, has formed a new Computer Disaster Service Division, Corporate Contingency Services. The new division will offer subscribers analysis of a company's losses due to a computer site disaster, disaster prevention assistance, contingency planning and recovery assistance.

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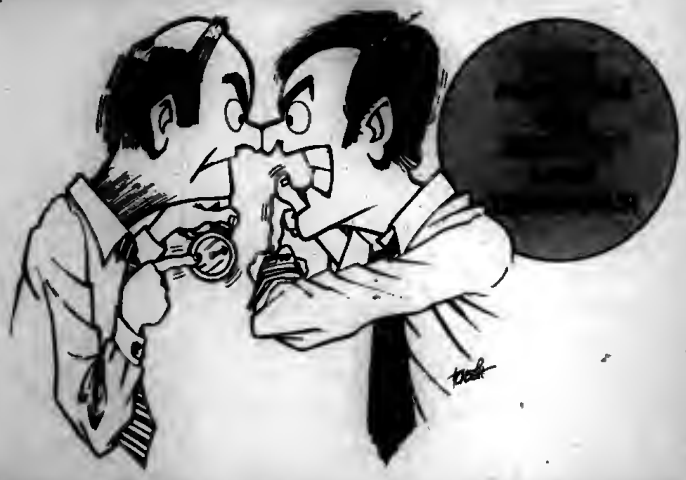

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CW COMMUNICATIONS/INC.

Adapso Considers IBM, CPA Competitors

(Continued from Page 73)

IBM bowed to Adapso pressure to let users know that the products comprising SSX are also priced separately, some members of Adapso think IBM has not gone far enough in publicizing pricing options for the product.

But the main concern of interested Adapso members is the extension of SSX to the higher end 4341 systems. Despite alarm about this competitive development, Adapso's Vendor and Industry Relations Committee did not recommend taking formal action against IBM at this time, but rather opted to continue informal discussions with IBM on this and other pertinent trade matters, according to committee Chairman Oscar Schachter, president of Advanced Computer Techniques Corp.

The specific actions discussed by the committee included advising the U.S. Justice Department of this issue as well as notifying the European Common Market Commission, which is investigating IBM marketing practices in Europe.

During the conference, Adapso also backed away from plans to pursue litigation to remedy problems caused by CPA firms' competitive practices. The issue centers around a perceived advantage that CPA firms have in selling software and services to companies for which they provide auditing services.

CPA Case Dropped

The organization earlier this year located a software firm that it believed had a legitimate case against a CPA firm, but then decided the case was not clear cut enough to warrant a suit, noted Douglas C. Jerger, CPA Relations Committee Chairman and vice-president of the Applications Software Division of University Computing Co.

However, Jerger said the organization would still consider another suitable "wounded warrior" with whom to explore litigation.

Besides litigation, Adapso had been considering petitioning the Securities and Exchange Commission to rule on the legal issue of "independence." Deciding against that action, the group will continue "a very aggressive dialogue" with the Big Eight accounting firms on fair competition.

Adapso is currently holding talks with Coopers & Lybrand and Peat, Marwick & Mitchell. Each of these firms is working on promulgating competitive practices policies for their companies.

However, it is an "impractical stance to assume CPA firms should not compete in the DP market," noted Ed Pringle, who heads the National Direct Management Consulting Services Division of Coopers & Lybrand.

In other actions, Adapso established a Microcomputer Software Committee, headed by Donald J. Devine, group vice-president of Comshare, Inc. The committee will investigate software piracy, portability, domestic and international business practices and education.

The committee could potentially bring another 100 members into Adapso, one member said.

Adapso also created the International Business Opportunities Committee, chaired by Dean F. Mohlstrom, president of Omnipraxis, Inc.

Lafer Next Adapso Chief

SAN DIEGO, Calif. — Fred Lafer, senior vice-president and chairman of Automatic Data Processing, Inc., was elected the 1983 chairman of the board during the Association of Data Processing Service Organizations, Inc.'s annual conference here last week.

Arthur Kramer, general manager of Xerox Computer Services, was elected vice-chairman of the board.

George Raymond, president of Automatic Business Centers, was elected treasurer.

Adapso Can 'Count on' Lautenberg

(Continued from Page 73)

Lautenberg said he will assume a tough position on trade with the Japanese, who he claimed have fostered a trade imbalance with U.S. companies. For one thing, the Japanese yen "is disproportionately undervalued with respect to the dollar, giving the buck a strength it really does not deserve."

Trade restrictions between the two countries "should apply university, which they clearly do not at present," Lautenberg said.

Domestically, Lautenberg assailed President Ronald Reagan's tax initiatives as inherently inequitable to small businesses, such as many of those which comprise the Adapso membership. It is these businesses, he said, that will create new jobs in the major economic growth area, high technology.

Asked what role the government should play in training displaced workers to meet the demands of a changing labor market, Lautenberg said he favors "government's role as an expediter more than a partner."

He pointed to a program under way in West Germany in which displaced workers are given a voucher to present to potential employers. This voucher is redeemable either in income tax credits or direct government rebates to those companies willing to train displaced workers for a new technical skill.

"It's a great program for small businesses which just can't afford training and education programs," he said. "At ADP, we'd had a policy of hiring only skilled workers because we couldn't pay for training."

Regarding federally guaranteed loans for students in technical and other fields, Lautenberg said Washington should provide more rather than cutting back on guaranteed loans, while tightening up on the administration of loan programs. Only by taking an active role in providing educational and research opportunities for the high-technology sector "can the government ensure we'll have the people we need to meet some very great challenges ahead."

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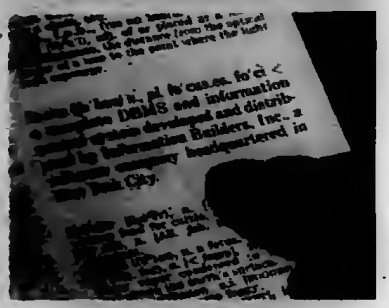

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Panel Tells Adapso That Vendors Can Benefit From User Groups

By Bill Laberis
CW Staff

SAN DIEGO, Calif. — If properly planned, user groups will ultimately benefit vendors as much as their customers. But there are different strategies vendors can employ to ensure that user groups produce a clear, two-way communications channel, not a forum marked by antagonism and discontent.

That was the message delivered by a vendor panel at the 22nd annual meeting of the Association of Data Processing Service Organizations, Inc. (Adapso) here last week.

Led by Richard Clikeman, vice-president of Execucom Systems Corp., the panelists generally agreed on the potential mutual benefits to be gained from user groups. These include reduced support requirements and product feedback that result from user testimonials and common product experiences.

Vendor's Role

But what role should the vendor play in planning and participating in user group functions?

Dudley Clark, senior vice-president of operations at McCormack & Dodge Corp., suggested the vendor's role be that of a passive group member but active participant — when invited by the users to be a participant. Clark suggested further that the user groups with the greatest user-vendor potential benefit are those that are organized, planned and funded almost exclusively by the users.

The vendor's role is one of support as it is needed, he said. Because McCormack & Dodge has mainfained a relatively low profile, Clark said, its user groups have remained nonincorporated, not feeling as though they had to bring the added clout of incorporation to user group meetings.

Meldon K. Gafner of Integrated Software Systems Corp. (Issco) preached a somewhat different philosophy. Gafner advocated a considerably more active role for the vendor in user group matters, while agreeing with Clark and panelist Gary Greenfield of Execucom that users groups "provide a great business opportunity."

Gafner said Issco's entire sales and marketing force is involved in planning and executing the annual user group meetings. Issco further structures and schedules about half the meeting time according to its own agenda, while organizing evening social functions.

Gafner claimed that, through extensive socialization fostered by Issco-planned activities, broad communications channels are opened during the meetings.

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858 Twin City Federal Tower, 121 6. 8th St.
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APPLICATIONS SOFTWARE DEVELOPMENT

- Financial Systems
- Manufacturing Systems

Requires senior level experience in design, development and implementation of financial or manufacturing applications. Database background essential.

SYSTEMS SOFTWARE DEVELOPMENT

- Database • On-Line Query
- DOS Systems
- Data Communications
- Integrated Data Dictionary
- Application Development System

Requires extensive background in systems programming or control systems software development within a large IBM meinframe environment. Strong Assembler language skills necessary.

TECHNICAL SUPPORT SPECIALISTS

Requires extensive Assembler with experience in one or more of the following: 3-5 years in systems programming; database systems such as IDMS or IMS; on-line systems such as IDMS/DC or CICS; installing and maintaining BTAM, VTAM, or TCAM.

MARKETING SUPPORT REPRESENTATIVES

Applications

Will provide implementation support to financial or manufacturing systems users. Requires extensive experience in computer-based applications systems, strong COBOL background and systems or database exposure.

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Manufacturing Systems

Technical expertise and excellent presentation skills needed to communicate systems concepts to field sales organization and prospective users. Must be able to develop multi-media presentations and sales support tools. Degree and marketing experience preferred.

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Responsible for style and accuracy of staff writers, marketing publications and other print materials and overseeing market research. Strong technical IBM mainframe background and excellent communications skills required.

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Opportunities exist throughout the east coast region to provide on-site technical support to current and prospective customers and conduct regional education classes for our IDMS customers.

These positions require extensive background in the medium/large IBM mainframe environment using a variety of operating systems. (DOS, VSE, OS software experience a definite plus!) Minimum of 3 years' experience in either systems programming, Data Communications, or database administration essential. Travel required.

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Based in Atlanta and reporting to the development staff, your responsibility will be to provide support, by telephone and in the field, to our customers in the use of our ESCAPE product. You will also assist in the development of product enhancements. This position requires one or more of the following: a thorough knowledge of IMS and Assembly language on IBM mainframes or a database administration background. Specific knowledge of IDMS would be a plus but is not an essential requirement. Success in this role demands strong interpersonal skills and some customer relations experience. Position will involve some travel.

If you'd like to be on board in time for our next big breakthrough, send your resume (specifying position of interest), to Roy Evarts, **Cullinane Database Systems, Inc.**, Dept. CW1115, 400 Blue Hill Drive, Westwood, MA 02090

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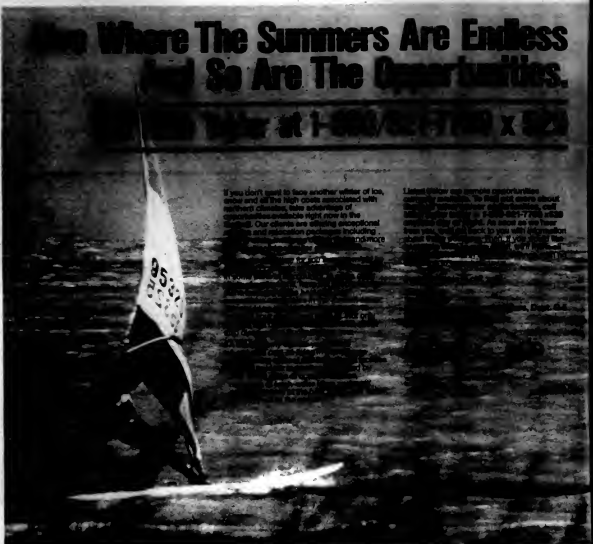

Texas, Oklahoma

Programmer Analysts—New DB/DC Projects. Corporate staff of a rapidly expanding Dallas Fortune 500 organization seeks experienced professionals with strong OS COBOL background. All applications projects are new and involve IMS DB/DC. To $29,800

Systems Analyst—Exposure to Senior Corporate Management. Large financial services organization seeks Internal Systems Consultant. Banking systems background preferred. To $36,000.

Director Systems Development—Energy Firm. $2 billion energy firm seeks an accomplished Manager to direct development efforts of three Managers and 50 professionals. IBM experience preferred. Good communications and people skills required. Dallas location. To $65,000.

SABRETALK Programmers. Prestigious consulting firm in Dallas seeks experienced SABRETALK Programmers for long-term client engagement. Financial SABRETALK preferred. To $30,000.

Microcomputer Development—Unique Projects. Worldwide company based in Dallas seeks several Microcomputer Systems Software Programmers to participate in leading edge commercial systems. Will use Intel 8086 with Assembler Language. To $33,000.

CICS Systems Programming Manager—Worldwide System. International organization in Texas with worldwide network seeks individual to supervise IBM technical support people. Data center composed of IBM 3033, Amdahl 470, MVS, JES 3, CICS, ACF/NCP/VTAM. To $36,000.

Regional Sales Manager—Turnkey Financial Systems. National computer products firm seeks a current Sales Manager based in Dallas to direct sales efforts for multi-state area. Minicomputer background preferred. Base salary to $40,000.

Systems Software Development—Operating Systems. Acknowledged leader in software packages seeks a professional to develop software for use by Systems Programmers. IBM ALC or systems software experience required. Dallas location. To $36,000.

Programmer—Resort Town Environment. Best of both worlds—new systems development and warm weather Texas Gulf Coast surroundings. Growing company is developing IBM 8100-based systems tied to 3081, OS/MVS, IMS DB/DC. Seeks experienced IBM Business applications Programmer. To $26,000

Mini/Microprogrammer—R&D Projects. Office of the Future vendor in Austin, Texas is building on widely accepted communication products. Company seeks Mini/Micro, Pascal, Assembler Programmers to help develop new products for future success. To $40,000.

Programmer Analyst—Learn On-Line. Respected South Texas supplier of on-line computer services to banks and commercial businesses needs Programmer with Assembler and COBOL experience to participate in on-line system development. CICS, DOS/VSE environment. To $35,000.

Banking Programmer—New IMS Development. Progressive bank in Austin, Texas is converting to OS/MVS with all new applications being developed using IMS DB/DC. Excellent opportunity to fully utilize and enhance IMS training. To $30,000.

Technical Consultant—IMS Design. Provide technical support both internally and to clients of this leading financial software firm. Currently developing entirely new version of industry leading packages. Beautiful Texas hill country location. To $42,000.

Programmer Analyst—Learn System 38. Rapidly expanding health care product manufacturer in Texas will convert to IBM System 38 using full database and communications capabilities. Full S/38 training available for RPG Programmer. To $25,000.

Systems Analyst—Four Day Week. State-of-the-art IBM environment, including IMS DB/DC, new systems development, and a four day work week to enjoy the South Texas sunshine. A truly outstanding opportunity. To $36,000.

Systems Software—New Products. Leading edge development of operating systems, compilers, utilities, device drivers, etc. using primarily Assembler language. Several positions from Programmer to Product Manager. Texas. To $38,000

Systems Programmers—Learn MVS. Oklahoma corporation seeks qualified Systems Programmers with a minimum of three years experience as a Systems Programmer. State-of-the-art environment. To $30,000

Programmer Analysts—Data Center Expansion. Manufacturing corporation with headquarters located in a Tulsa suburb seeks Programmers for its small but growing data processing center environment. Three years experience with CICS and DOS/VSE background required. To $26,000

Programmer Analyst—Rural Location. Industry leader located in rural Oklahoma seeks a professional for its DOS/VS and CICS environment. One year of DOS COBOL experience and financial applications experience required. To $24,000

Programmer Analyst—Unique Benefits. Major transportation corporation seeks professionals with PL/1 coding experience and IMS applications. Tulsa location. To $35,000

EDP Auditor—New Position. Rapidly expanding Tulsa corporation seeks a professional with a minimum of one year EDP auditing experience. To $30,000

Marketing Representative—Management Potential. Major national corporation located in Tulsa seeks an experienced data processing Marketing Representative to cover a large, lucrative territory. Career path leads to sales management. Estimated first year earnings $45,000.

DBA—Ground Floor. Oklahoma based corporation seeks a professional for its state-of-the-art IBM data center. A minimum of three years IDMS design experience required. To $45,000.

Programmer Analyst—Energy. Large petroleum corporation with headquarters in Tulsa seeks a professional with two years of OS COBOL and accounting applications experience. CICS and IMS experience preferred. To $30,000

Communications Network Specialist. A Houston leader in the drilling technology industry is seeking a communications/networking heavyweight. Experience with ADF/NCP ACF/VTAM and SNA required with any CICS or systems programming background preferred. To $49,000.

Minicomputer Programmer Analysts. Major Houston corporation supporting the medical industry is in an exceptional growth position. Multiple additions to staff are projected over the next several months. Four years of FORTRAN programming, experience with MODCOMP hardware and a degree are required. To $36,000

Senior Analyst/Programmer. A major Houston financial institution is seeking an individual with commercial, installment or student loan experience. Knowledge of current marketplace loan terminology and experience in an IBM mainframe environment sought. To $33,000

Programmer Analyst—RPG II Interactive Systems. Major chemical company is seeking a Programmer with a minimum of two years experience designing and coding interactive systems in RPG II on IBM minicomputers. Teleprocessing experience and a degree are desired. Convenient Houston location and flex hours are bonuses to this opportunity. To $38,000.

Senior Programmer Analyst. Major energy corporation has upgraded its data processing center to state-of-the-art IBM. Oil and gas accounting experience in an OS/COBOL environment and a degree are required for this very visible opportunity in Houston. To $35,000

Technical Applications Specialist. This trend-setting employer in Houston is seeking four highly skilled and motivated specialists with skills in earth science or pipeline systems. Areas of special interest are well logging analysis, pipeline modeling, reservoir evaluation and interactive graphics. Degree required. Experience on DEC systems, PDP or VAX preferred. To $38,000.

Data Base Administrator. Fortune 100 energy company in Houston is looking for a strong IMS expert with extensive experience with logical and physical design of data base structuring. Should be thoroughly familiar with Data Dictionary and numerous other data base tools and measurement aids. Previous DBA experience, use of ADF and IMS/DC will command top compensation. To $45,000

Systems Analyst. The nation's second largest independent producer of oil and gas is adding a Systems Analyst to their staff. Requires a minimum of eight years in data processing. Must have demonstrated systems design and analysis skills in an IMS environment. Structured techniques and a degree will net a top dollar offer. Excellent Houston suburban location and outstanding professional surroundings. To $38,000.

Project Leader. Internationally acclaimed energy company has relocated its data center to a prestigious Houston suburb. This is the only remaining Project Leader position still open. Requires five years in general accounting systems, concentrating in on-line systems using CICS or any DBMS. Experience with packaged software is preferred. To $40,000

Management Consultant. Unique position with a national firm consulting to oil and gas users on the use of medium and small computers. Requires a degree and three or more years developing oil and gas accounting systems on minis and small mainframes. Minimal travel. Experience with requirements analysis and feasibility studies would assure you this Houston opportunity. To $35,000

North Carolina, Georgia, Florida

Sales Representative—Timesharing. Expanding Miami branch of a regional firm seeks an experienced Timesharing Salesman to develop local banking clients. Estimated first year earnings $45,000.

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Banking Analysts – Management Potential. Large Florida statewide bank seeks Banking Analysts for its latest IBM state-of-the-art data center. Continuing formal training programs provide excellent management promotion opportunities. Bankers with programming, analysis, project leadership, systems programming or data communications experience preferred. To $30,000

Manager of Systems and Programming – On-line Environment. Growing Florida company with over $300 million in sales seeks an aggressive Manager to take over 12-person department. CICS, VTAM experience preferred. To $38,000.

Programmer – Scientific Software. Major Florida industrial corporation seeks a micro/minprocessor professional to develop systems software. Experience in Assembler writing required. I/O Drivers preferred. To $30,000.

Manager – Quality Assurance. Major Fort Lauderdale manufacturer of minicomputers seeks a Manager for its quality and reliability software department. Experience needed in internals of operating systems and/or compilers. Will manage 12 professionals with projected growth to 40 people. To $36,000

Programmer Analysts – New Miami Data Center. Major services vendor to financial institutions has relocated to suburban Miami and seeks COBOL Programmers. Burroughs 4700, MCP, CIF and banking applications environment with more than 500 terminals on-line. To $25,000.

Programmer Analyst – Learn CICS. Miami based firm seeks a professional to work in its state-of-the-art IBM 4341 DOS/VSE environment. Two years of COBOL programming experience preferred. CICS training provided. To $23,000.

Scientific Analyst. Data communications manufacturer located at Doral Country Club offers environment of scientific simulation, network analysis and line monitor development. PDP/11, RSX-11M, FORTRAN and Assembler experience preferred. Degree required. To $26,000

Programmer Analysts – Project Leader Potential. Large Florida financial institution seeks Analysts for both its Miami and Tampa data centers. IBM DOS/VS, COBOL, BAL environment offers career path leading to Project Leader. To $29,000

Systems Programmer – New System. Miami based financial institution with newly installed IBM 4331's seeks a DOS/VSE Systems Programmer to become its resident expert. Near ocean location. To $26,000.

Consultants – Programmer Analysts. A major division of a communications utility has moved to Orlando and requires multiple Programmers with heavy experience in IMS DB/DC and PL/1. To $40,000

Programmer Analysts – Banking. Leading Florida financial institution seeks professionals to work in its state-of-the-art IBM environment. Excellent internal training program provided. To $28,000

Consultant – National CPA Firm. National accounting firm with heavy concentration in medium-size client firms seeks a DP Consultant to help build its practice in the Atlanta area. Minicomputer hands-on skills preferred. This is an excellent opportunity to gain exposure to a variety of computer hardware applications and industries. To $35,000.

Senior Programmer Analyst – Data Base Applications Development. Major Southeast software firm is developing a financial corporate planning and modeling software package. This on-line CICS version will run under IMS, TOTAL, IDMS and DL/1 to offer complete portability. Position provides the opportunity to learn data base concepts and actually work on all the major DB management systems available. To $31,500.

Technical Support Manager – IBM State-of-the-Art Environment. Diversified billion dollar company seeks an experienced OS/MVS Technical Support Manager with distributed mini networking experience who has managed five or more Systems Programmers in a state-of-the-art environment. IBM 303X, 4341, MVS, etc. To $50,000

Data Base Sales Representative – Move to Branch Manager. Rapidly growing Atlanta based firm seeks a professional for its product line which includes data base and other systems software products. Excellent growth opportunity. Estimated first year earnings to $73,000

COBOL Programmer – Learn IMS, CICS. Dynamic International firm based in Atlanta offers an excellent growth opportunity for a user oriented IBM COBOL Programmer. Company will train in IMS data base and CICS telecommunications while offering career paths in systems and technical management as well as direct marketing. To $29,000

MRP Specialists – Major Start-Up. International computer services company seeks two MRP Specialists having a minimum of three years experience in MRP design and installation. IBM MVS working experience preferred. Positions require interaction with manufacturing clients and some travel. Atlanta location. To $35,000

Minicomputer Programmer – Major Vendor Headquarters. Dynamic Atlanta based company seeks an experienced COBOL professional to develop new integrated financial related application programs on the latest Hewlett Packard and Four Phase minprocessors. Minimum two years COBOL experience required. To $26,000

Technical Support Representative – Financial Planning. National Atlanta-based firm, which increased in sales 43% in the past year, seeks an experienced Programmer capable of performing in a marketing support role, FORTRAN or COBOL experience preferred. To $32,500

Senior Analyst – Banking Systems. One of Atlanta's largest financial institutions seeks a professional to assume full responsibility for two new major projects. Will work directly with top management staff to define, plan, schedule and implement these systems. Projects involve direct management responsibility for two Junior Systems Analysts and four Programmer Analysts. To $33,000

Major Bank MIS Expansion – Learn On-Line Data Base. North Carolina financial institution seeks computer professionals at various levels to work in on-line and batch applications development. State-of-the-art IBM systems environment. To $29,500.

Louisiana, Mississippi

Programmer Analyst. International engineering firm with corporate headquarters in New Orleans seeks a P/A with minimum of one year programming experience with IMS/DL/1 and COBOL. To $24,000

CAD/CAM Specialist. Major development opportunity with Fortune 500 company located in New Orleans, LA. Minimum of 3 years CAD/CAM experience sought. To $30,000.

Senior Real-Time Systems Analyst. Major New Orleans firm has a new position for a professional with 6 years real-time experience. Thorough knowledge of design and programming in Assembler and FORTRAN. Bulk POWER management experience a plus. To $41,500

System Analyst. NASA's designated contractor for the long-term Space External Tank Program seeks S/A with experience in manufacturing, inventory, purchasing or shop floor control. Minimum 3 years experience in problem analysis and solutions, program design and development. To $30,000.

Data Base Administrators – NASA Project. Major aerospace firm for Space External Tank Program seeks DBA's with a minimum of 5 years database experience on UNIVAC 1100 system. New Orleans. To $38,000

Banking Project Leader. Major Louisiana bank seeks P/L with minimum of 5 years experience as a supervisor. Applications experience in commercial ad installment loans, and CD's a plus. To $30,000.

IMS Systems Programmer. Multi-state organization based in New Orleans requires two years experience in the installation and maintenance of IMS. State-of-the-art environment with multiple CPU's. To $36,000.

MVS Systems Programmer. $3 billion company headquartered in New Orleans seeks a Systems Programmer with 5 years OS experience. Will perform sysgens, tuning, etc. IMS, CICS, VTAM, NCP a plus. To $37,000

OS/MVS Programmer. Major bank installing ANACOMP/IMS software requires 2 or more years experience installing and tuning MVS. Outstanding southeastern location, multi-processor environment. To $30,000.

Programmer Analyst – Systems 38. Manufacturer of oil field equipment in Louisiana requires experienced RPG II/RPG III Programmer to join their staff. Degree and MAPICS are plusses. To $27,000

Programmer Analyst – Banking Applications. Expanding full service bank requires one year BURROUGHS COBOL experience. Loans, savings, CD, ATM, or Tymshare experience are desirous. To $20,000

Programmer Analyst – Leading $1 billion regional bank in New Orleans seeks P/A with minimum of 2 years OS/COBOL programming experience. Assembler language a plus. To $25,000

Sales Representative – Process Control Systems. Expanding company seeks experienced Salesman with technical degree to sell fully integrated turnkey systems within the petrochemical and power generating industries in Louisiana. To $60,000

EDP Auditor. Major regional bank in New Orleans seeks an EDP Auditor with minimum of 3 years experience in AUDIT and programming using COBOL and inquiry report writer. To $30,000

- Programmer/Analysts
- Systems Programmers
- Data Base Analysts
- Systems Developers

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Newport News Shipbuilding has been building quality Naval and commercial vessels for nearly a century. We are committed to the highest quality standards which are unsurpassed throughout the industry.

Our professional fast-paced environment requires that candidates have directly related experience and college training. Advanced degree levels are desired. Positions for Programmer/Analysts, Systems Programmers, Data Base Analysts and Systems Developers are available in the following areas:

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- Computer Aided Process Planning
- Shop Floor Control
- Data Base Design

APPLICATIONS
- Production/Materials
- Financial/Administrative
- Data Base Development (Honeywell/IDM)

SYSTEMS-HONEYWELL (GCOS-GRTS)
- Operations Support
- User Support

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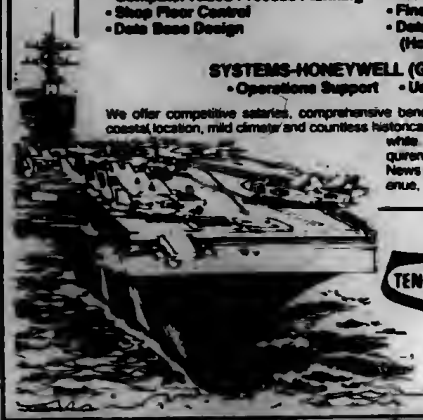

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The ideal candidate will have an MS/PhD in computer science or mathematics with seven to ten years experience in data processing. Three to five years experience with the Digital Equipment PDP-11 and VAX-11 families is essential. Exposure to IBM environments is also desirable. In addition the candidate should have expertise in DBMS, networking, telecommunications, management science applications and fourth generation languages.

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A major diversified construction company in the southeastern U.S. has challenging opportunities for talented DP pros, both overseas and at our corporate headquarters.

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Test and Analysis Software Products Manager

Provide technical direction for Test & System Analysis Software Products, i.e., FATIGUE, MODAL-PLUS, SABBA, OPTIMOD, and SYSTAN, including communicating to R & D maintenance and enhancements necessary to assure continued product viability

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Investigate with clients new applications of Test & System Analysis Software Products to increase product productivity and quality

Develop product sales strategies and liaison with worldwide aerospace agencies to generate sales and technology transfer in the areas of Advanced Structural Dynamics

In depth knowledge of advanced engineering techniques in the areas of experimental testing and systems simulation as well as proficiency in the use of vibration analysis hardware systems and FEM techniques required

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- **DATA BASE OPENINGS**
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Qualified candidates interested in learning more about these opportunities at Martin Marietta should forward resumes, including salary history to Martin Marietta Aerospace, Denver Glazier, CW-1115, P.O. Box 29304, New Orleans, Louisiana 70189. We are an equal opportunity employer, m/f/h.

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Sr. Staff Programmer

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Requires experience in office applications, QA/Testing, and a knowledge of Systems Programming. Management experience preferred. BSCS, BS Engineering or equivalent experience.

Software Programmers

Requires experience in: DOS/OS; Compiler Design, COBOL, ASSEMBLY and RPG languages; Operating Systems maintenance, and utilities. BSCS or equivalent experience.

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Must have Operating Systems, Compiler and/or Communications background for lead management position in software testing and control. BSCS, BS Engineering or equivalent experience.

Programmer

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2+ years experience in manufacturing environment preferred. Accounting or Business Data Systems Degree required.

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8 to 10 years experience in COBOL and product knowledge. BSCS or equivalent experience.

Communications Programmers

2 to 5 years experience with 2 years in data communications development, SNA/SDLC, and 2 years with IBM Protocols. BSCS/MSCS or equivalent experience.

Software Technical Writers

2 to 10 years experience in computer software technical writing. BSCS/BS Engineering or equivalent experience.

Please send your resume including salary history to Professional Employment, Datapoint Corporation, 9725 Datapoint Dr., MS G-05, San Antonio, Texas 78284.

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DATAPOINT

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- Minimum 3 years data processing experience.
- Degree in Business administration, Finance or Computer Science preferred. A working knowledge of accounting principles and procedures is essential.

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Interested applicants should send resume, including salary history, to Susan Ackerman, Phoenix Leasing Incorporated, P.O. Box 1179, Mill Valley, CA. 94941. All replies held confidential. Bay Area residents & individuals only reply. An equal opportunity employer.

PHOENIX LEASING INCORPORATED

Programmers

MVS SYSTEMS PROGRAMMERS

GESCO is a major computer service and software development company serving the banking and financial industry. We support an ONLINE communications network of over 6,000 terminals on one IBM 3033 and two IBM 158's. Our major software components include MVS/SP, JES2, ACF/VTAM, ACF/NCP, TSO, and INTERACT.

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Responsibilities will include the installation and maintenance of MVS and related program products, and the installation and integration of system software on new CPUs, both at the central site and at new remote data centers.

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gesco corporation

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MIT's Laboratory for Computer Science seeks a research staff member who will serve as Director of its Community Information System Project. Initially, will help negotiate with outside organizations to form a consortium of information providers to participate in an experimental computer based community information system. In later stages of project, will help supervise undergraduate research students; make and maintain contacts with outside organizations; coordinate series of technical reports; perform short and long range project planning and manage project finances. Position reports to faculty supervisor.

Candidates must have advanced degree in an engineering discipline or the equivalent, plus programming skills and a minimum of 2 to 3 years management experience. Proven skills in writing scientific papers and summaries from data analysis as well as ability to organize and manage research projects involving students vital.

Please submit 2 copies of resume, ATTN: Job No. R926, to: MIT Personnel Office, E19-239, 77 Massachusetts Avenue, Cambridge, MA 02139. MIT is an equal opportunity/affirmative action employer.

MIT

DIRECTOR OF DATA PROCESSING U.S. RAILROAD RETIREMENT BOARD - CHICAGO, ILLINOIS

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Academic preparation in business, industrial, or teaching experience in the use of a computer-based information system. Teaching includes FORTRAN, COBOL, RPG, BASIC, PASCAL, and Systems Programming, and computer logic and flow charting. Master's degree in Computer Science, Management Information Systems, Business Management or Mathematics required. Position available August 15, 1983. (Deadline for submitting applications is December 10, 1982.)

Address inquiries to: Office of the Dean, Firelands College, 902 Rye Beach Road, Huron, OH 44839. An affirmative action/equal opportunity employer.

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Prog/Anal (RPG 111 or RPG 11)	30-40K
Prog/Anal (2 yrs DEC PDP 11)	25-31K
Prog/Anal (2 yrs COBOL, UNI 1100)	23-32K
Prog/Anal (2 yrs IMS or CICS)	28-36K
Prog Anal (2 yrs COBOL, HONEY 66)	25-34K
Sys Anal (3 yrs IMS or CICS)	28-38K
Sys Prog (2 yrs OS or DOS/VSE)	23-38K
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REQUIRES a minimum of 5 years hardware/software and management experience. RESPONSIBILITIES include 3 shifts of Computer Operations, Datagraphix COM Operation, Tape, Library and RJE Operations.

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REQUIRES technical support background in a large Data Center. PRIMARY RESPONSIBILITY will be CAPACITY PLANNING. Knowledge of various software tools and techniques preferred.

We are conveniently located in the heart of the San Joaquin Valley in central California where you can find a relaxed way of life, an outstanding climate, clean air, affordable housing, and countless year-round recreational activities in the near-by mountains, while the excitement of San Francisco is just three hours away.

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Data Processing

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Senior Systems Engineer (Herndon, VA) — Minimum of 8 years experience in hardware/software integration. Familiarity with IBM Systems Programming and IBM 3270 terminal support highly desirable. Position includes design, technical coordination and acceptance of custom hardware and software from vendors. Experience in BTAM, VTAM, BSC, or SNA/SDLC or DATACOM/DC is highly desirable.

Senior ADR Software Specialist (Saudi Arabia) — Minimum of 6 years experience in data processing with at least 3 years in the generation and usage of ADR products such as DATACOM/DB, DC, DD, DQ, DR, LOOK, VOLLIE, LIBRARIAN, and METACOBOL in a user support environment.

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CSC

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(703) 442-0100
Resume to: Hallerscht & Co.
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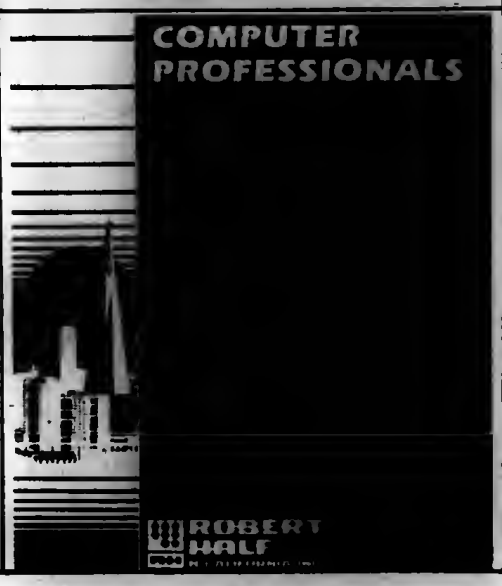

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Help develop our exciting new distributed processing system, utilizing the IBM 8100 under DPPX. Proven leadership and technical skills a must.

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Join our retail systems group by handling the communications and technical aspects of our major Series 1 network. Thorough command of mini Assembler required.

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Wakefern Food Corporation

Systems Development Manager

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position announcements

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We are currently seeking an experienced Systems Programmer to work with our new Univac 1100 series computer. Position requires a degree in Computer Science, Business, Math, or equivalent background.

This is an excellent opportunity for professional development with an attractive base salary and outstanding benefits which include profit sharing, stock purchase plan, medical/vision/hearing/dental/life insurance, and free parking and health club facilities. Qualified candidates, interested in this position, should send a resume, in complete confidence, to:

Pete Moore, Corporate Recruiter
Mesa Petroleum Co.
One Mesa Square, P.O. Box 2009
Amarillo, Texas 79189
(806) 378-1000

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The results-oriented professional we seek will be responsible for the development of our entire communications network. Your superior interpersonal skills and your proven record of developing and implementing data processing and voice communications networks between retail point-of-sale, distribution centers, home office and satellite installations will be a great asset in directing our company to state-of-the-art.

We offer a highly competitive salary, outstanding benefits and growth opportunities. Send resume with salary history in confidence to: **L. Olsen, Jefferson Ward, 15000 N.W., 17th Ave., Miami, FL 33169.**

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Mr. Sam Buggica, Computer Operations Manager
c/o City of Tampa Data Processing
900 N. Ashley Street
Library West Building
Tampa, Florida 33602
813/223-8067

The equipment consists of NCR 8585, 2MB Processor, consisting of tape drives, disc drives, printer, card reader, CRT's, various support controllers.

Inquiries should be made by Nov. 30, 1982 in order to allow enough time for bid response.

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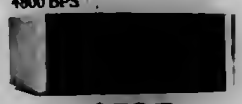

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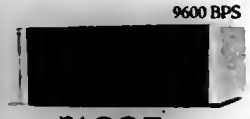

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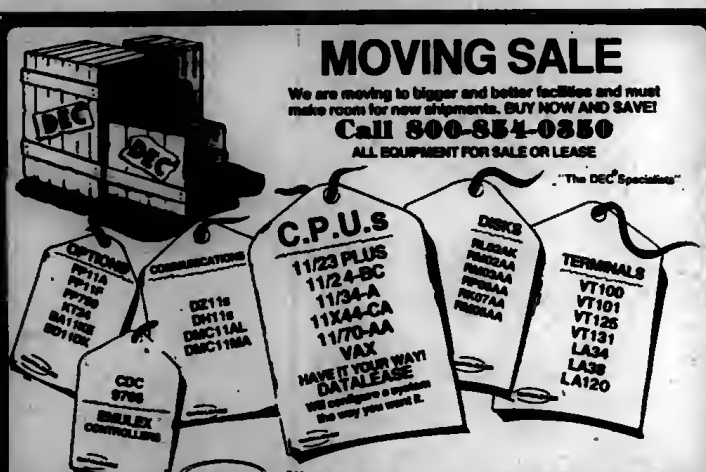

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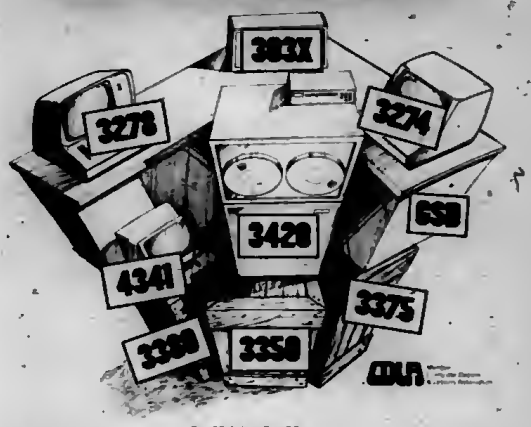

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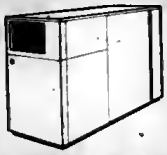

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General Request for Proposal No. 787 due 3:30 p.m. Wednesday January 5, 1983, for the acquisition of library network equipment and services. This is a general RFP to be used to select library network facilities for the State of Mississippi during 1983

General Request for Proposal No. 788 due 3:30 p.m. Wednesday January 5 1983 for the general acquisition of consulting services to address upcoming project needs in the areas of feasibility study systems analysis and design, and systems development and implementation This is a general RFP to be used to select consulting services for the State of Mississippi during 1983

General Request for Proposal No. 789 due 3:30 p.m. Wednesday January 5, 1983 for the acquisition of IBM 8100 compatible terminals and printers This is a general RFP to be used to select terminals and printers for the State of Mississippi during 1983

General Request for Proposal No. 790 due 3:30 p.m. Wednesday, January 5 1983 for the acquisition of acoustic couplers This is a general RFP to be used to select couplers for the State of Mississippi during 1983

General Request for Proposal No. 791 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of low to medium speed synchronous and asynchronous modems ranging in speed up to 3600 baud. This is a general RFP to be used to select modems for the State of Mississippi through 1983

General Request for Proposal No. 792 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of medium high and wideband modems ranging in speed from 4800 through 56K baud This is a general RFP to be used to select modems for the State of Mississippi during 1983

General Request for Proposal No. 793 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of short haul modems line drivers and modem eliminators This is a general RFP to be used to select special purpose modems for the State of Mississippi during 1983

General Request for Proposal No. 794 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of IBM 3270 compatible CRT s printers and controllers. This is a general RFP to be used to select terminals for the State of Mississippi through 1983

General Request for Proposal No. 795 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of microcomputers, peripherals and software This is a general RFP to be used for acquiring micros for teaching data acquisition and a variety of other purposes for the State of Mississippi during 1983

General Request for Proposal No. 796 due 3:30 p.m. Wednesday January 5 1983, for the acquisition of graphics terminals plotters and related peripherals This is a general RFP to be used to select graphics equipment for the State of Mississippi through 1983

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General Request for Proposal No. 800 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of keypunch services for State Agencies and Institutions This is a general RFP to be used to select keypunch services for the State of Mississippi during 1983

General Request for Proposal No. 801 due 3:30 p.m. Wednesday January 5 1983 for the acquisition of on-line bibliographic and reference services for various Mississippi Agencies Educational Institutions and Public Libraries to access cooperative on-line shared bibliographic systems

Request for Proposal No. 802 due 3:30 p.m., Tuesday December 28 1982 for the acquisition of additional UNIVAC compatible mass storage subsystems to compliment an existing UNIVAC 1100 80 computer system at a state university

Request for Proposal No. 803 due 3:30 p.m. Tuesday December 14 1982 for the acquisition of a telecommunications software package for use on an existing A M VDI-5404 compset phototypesetter terminal capable of receiving information from an A B Dick Magna Sr Word Processor

Request for Proposal No. 804 due 3:30 p.m., November 30 1982 for the acquisition of IBM System Control Program VMS SP 1 3 JES2 Product No 5740-XYS or equivalent

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Ads are accepted in the mail, by phone or by telecopier. Ads can be accepted up until the Monday before issue (7 days in advance of issue date). You should write out your ad before submitting it. (The standard size will hold approximately 25 words of copy.)

Once you've written your ad, send it in with the coupon below or call one of our ad-takers. (If your company has never advertised with us before we request a check with your order.)

Remember that all ads are standard. No special typefaces, no borders and no logos are allowed. Ads are set on a six-column page in our classifed section under the heading "The Bulletin Board.". We assume no liability for errors beyond the price of the ad in the case of material errors.

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COMPUTERWORLD BULLETIN BOARD

Issue Date: Ads can be accepted up until the Monday preceding the issue desired. Computerworld comes out every Monday.

Classifications: Most ads will be classified according to the brand of equipment that is being bought or sold. These classifications are: Altos, Burroughs, Control Data, Data General, Digital/DEC, Hewlett Packard, Honeywell, IBM, NCR, Salvage, Sperry Univac, Teletype, Terminals, TI, WANG, Miscellaneous.

Copy: Copy for your ad must be clearly typewritten and may be sent in via the mail or by telecopier (telecopier extensions are 410 and 451). Ads may be given over the phone to our team of ad takers. The standard size is 1 column by 1 inch deep. These units may be combined to form larger sized ads. Describe the equipment very briefly, give the price and the name of the person to contact. All ads will be set up using a standard format. No borders or logos are allowed.

Cost: The price for each standard unit is $99.00 (One unit minimum and no fractional units allowed). There are no agency commissions and no quantity discounts.

Billing: Once you've written your ad, send (or call) it in with your name and address for billing purposes and we'll run it. (If your company has never advertised with us before, we request a check with your order.)

Issue Date(s): _____

Signature: _____

Name: _____

Company: _____ Title: _____

Address: _____

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Send this form to:
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375 Cochituate Road, Box 880
Framingham, MA 01701
(800) 343-6474 **(617) 879-0700**

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	4655	Key Lock
	2500	Comm Adapter
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	4901	Workstation Control Expansion
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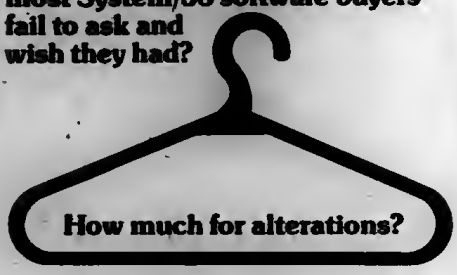

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THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
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software for sale | software for sale | software for sale | software for sale | software for sale

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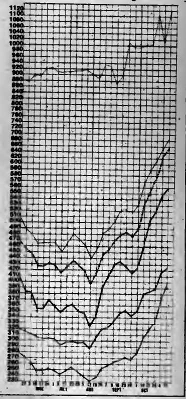

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Computerworld Stock Trading Summary

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CLOSING PRICES WEDNESDAY, NOVEMBER 10, 1982

EXCH		1981-82 RANGE (1)	CLOSE NOV 10 1982	WEEK NET CHNGE	WEEK PCT CHNGE
	COMPUTER SYSTEMS				
N	AMDAHL CORP	17- 39	32	- 1/2	-1.5
N	BURROUGHS CORP	28- 48	46 1/4	-2	-4.1
O	COMPUTER AUTOMATION	7- 17	13 1/8	- 1/2	-3.1
N	CONTROL DATA CORP	21- 42	40 3/4	-1 1/8	-2.0
N	CRAY RESEARCH INC	20- 41	39 3/8	+ 1/8	+0.3
N	DATA GENERAL CORP	20- 52	42 7/8	-1 7/8	-4.2
A	DATAPOINT CORP	11- 34	22 1/8	-1 1/8	-4.8
N	DIGITAL EQUIPMENT	62-105	103 1/2	-1 1/2	-1.4
A	EECO INC	6- 10	8 1/2	+ 1/4	+2.7
N	ELECTRONIC ASSOC.	9- 12	12	- 3/8	-3.0
N	FLOATING POINT SYST	16- 30	34 1/2	+ 1/8	+0.5
N	FOXBORO	22- 38	37 5/8	+ 3/8	+1.0
O	FULCRUM COMP GRP	1- 3	1/4	0	0.0
O	GENERAL AUTOMATION	3- 8	5 1/2	0	0.0
N	HARRIS CORP	20- 43	38 1/2	- 1/4	-0.8
N	HEWLETT-PACKARD CO	38- 71	68 1/8	-2 5/8	-3.7
N	HONEYWELL INC	80-102	100	-1 1/2	-1.4
N	IBM	48- 88	84 3/8	-1 3/8	-1.6
O	IPL SYSTEMS INC	5- 8	8 1/4	- 3/4	-8.2
O	MAGNUSON COMP SYSTS	2- 10	4	0	0.0
N	MANAGEMENT ASSIST	7- 16	13 1/8	- 3/8	-2.7
O	MINI-COMPUTER SYST	1- 4	1/4	0	0.0
O	MODULAR COMPUTER SYS	9- 12	11 7/8	- 1/8	-1.0
N	MOHAWK DATA SCI	10- 18	18	- 3/4	-4.0
N	NCR	38- 88	85 3/8	-2 5/8	-2.0
N	PERKIN-ELMER	17- 32	31 7/8	- 1/8	-0.3
O	PRIME COMPUTER INC	18- 38	38	+ 1/2	+1.4
N	SPERRY CORP	21- 37	31 1/4	- 3/8	-1.1
O	TANDEM COMPUTERS INC	14- 34	21 1/4	- 1/8	-0.5
N	TEXAS INSTRUMENTS	71-129	120 3/4	+ 7/8	+0.8
N	WANG LABS 'B'	23- 53	52	-1 1/4	-2.3
N	WANG LABS 'C'	21- 53	51 3/8	-1 3/4	-3.2
	LEASING COMPANIES				
O	BOOTHE FINANCIAL CP	22- 28	24	0	0.0
N	COMDISCO INC	13- 28	28	+1 1/2	+5.6
O	COMMERCE GROUP CORP	1- 1	3/8	0	0.0
O	COMPUTER INVSTRS GRP	1- 2	3/8	0	0.0
O	CONTINENTAL INFO SYS	7- 16	10 3/4	- 1/2	-2.3
N	GPF INC	5- 13	10 1/8	- 1/8	-1.2
O	ITEL	1- 5	5/8	0	0.0
O	LEASPAC CORP	1- 2	1/8	0	0.0
N	U.S. LEASING	16- 35	25	+1 1/8	+3.7

EXCH: N=NEW YORK; A=AMERICAN; B=PHIL-BALT-WASH; B=BOSTON; L=NATIONAL; M=MIDWEST; O=OVER-THE-COUNTER
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EXCH		1981-82 RANGE (1)	CLOSE NOV 10 1982	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & EDP SERVICES				
O	ADVANCED COMP TECH	1- 8	1 3/4	0	0.0
O	ADVANCED SYSTEMS INC	8- 16	16	- 1/4	-1.5
O	AGS COMPUTERS INC	7- 15	14 1/2	- 1/2	-3.3
N	ANACOMP INC	8- 18	16 1/8	-1	-6.2
O	ANALYSTS INTL CORP	5- 8	7 1/4	0	0.0
A	APPLIED DATA RES.	16- 40	38 5/8	+1 1/4	+3.2
O	ASA COMPUTER SYSTEMS	12- 24	24 1/4	+ 7/8	+3.7
O	AUTOMATIC COMP INS	1- 5	2 1/2	+ 1/8	+5.2
N	AUTOMATIC DATA PROC	21- 33	32 7/8	- 1/8	-0.3
O	CGA COMPUTER ASSOC	2- 8	8 3/4	0	0.0
O	COMPUTER ASSOC INT'L	13- 36	35	-1 1/8	-3.4
O	COMPUTER HORIZONS	4- 3	4 1/8	0	0.0
O	COMPUTER NETWORK	4- 8	7 5/8	0	0.0
N	COMPUTER SCIENCES	11- 20	18 3/4	- 7/8	-4.4
O	COMPUTER TASK GROUP	9- 17	15 1/4	+1	+7.0
O	COMPUTER USAGE	2- 4	3 1/4	0	0.0
O	COMPUTONE SYSTEMS	13- 28	29	+ 1/4	+0.8
O	COMSERV CORP	11- 18	18 3/4	- 1/2	-2.9
O	COMSHARE	8- 16	8 5/8	+ 1/8	+1.4
N	CULLINANE DATABASE	24- 53	53	- 1/4	-0.4
O	CYCARE SYSTEMS INC	9- 16	16	+ 1/4	+1.5
O	DATA DIMENSIONS INC	1- 3	1/4	0	0.0
O	DATATAB	1- 4	7/8	0	0.0
O	DYATRON CORP	2- 4	2 5/8	0	0.0
N	ELECTRONIC DATA SYST	19- 48	48 1/8	+1 5/8	+3.4
O	INFORMATICS INC	10- 24	22 3/4	- 3/4	-3.1
O	INSYTE CORP	1- 3	1 3/4	0	0.0
O	IPS COMPUTER MARKET.	1- 2	1 1/4	0	0.0
O	KEANE ASSOCIATES	4- 9	4 3/4	- 1/4	-3.0
O	LOGICON	12- 26	25 1/8	- 1/8	-0.4
O	MGMT SCI AMER INC	10- 46	38 1/2	+1	+2.5
O	MATHEMATICA INC	12- 18	16 1/2	0	0.0
O	MATHEMATICAL APP GRP	12- 18	18	- 1/2	-3.0
O	NATIONAL DATA CORP	13- 23	18 1/2	0	0.0
O	PANSOPHIC SYSTEMS	9- 20	18 3/4	- 3/4	-3.8
N	PLANNING RESEARCH	8- 10	10 1/8	- 1/8	-1.2
O	PROGRAMMING & SYS	1- 2	1 7/8	+	+5.3
O	REYNOLDS & REYNOLDS	17- 27	26 1/4	- 1/2	-1.8
O	SEI CORP	21- 44	44	+ 3/4	+1.7
O	SHARED MEDICAL SYST	20- 48	46 1/4	0	0.0
O	SCIENTIFIC COMPUTERS	8- 11	11 1/4	+ 1/4	+2.2
O	SOFTWARE AG	9- 17	14	- 7/8	-5.8
N	TYMSHARE INC	13- 30	20 3/4	+ 1/2	+2.4
N	UPS CORP	10- 14	12 1/4	+ 1/2	+4.2
O	WYLY CORP	7- 13	11 3/4	- 1/4	-2.0
	PERIPHERALS & SUBSYSTEMS				
N	AM INTERNATIONAL	1- 13	2 3/4	+ 5/8	+28.4
O	ANDERSON JACOBSON	8- 22	21 5/8	0	0.0
O	AUTO-TROL TECHNOLOGY	9- 13	15 1/8	- 1/4	-1.6
O	BANCTEC INC	7- 33	18 3/4	+ 1/4	+1.3
A	BEEHIVE INT'L	4- 8	6 5/8	- 1/4	-2.8
A	BOLT,BERANEK & NEW	9- 31	31 1/4	- 1/8	-0.5
O	CAMBEX CORP	2- 4	3 3/4	+ 5/8	+15.7
N	CENTRONICS DATA COMP	8- 17	15 5/8	-1	-6.0
O	CETEC CORP	4- 8	5 1/4	- 1/8	-2.3
O	COGNITRONICS	2- 8	6 3/4	- 1/4	-3.3
O	COMPUTER COMMUN.	1- 2	3/8	0	0.0

EXCH		1981-82 RANGE (1)	CLOSE NOV 10 1982	WEEK NET CHNGE	WEEK PCT CHNGE
A	COMPUTER CONSOLES	15- 36	39 7/8	+1 1/8	+3.2
O	COMPUTER DEVICES INC	4- 21	15 7/8	-2	-11.8
O	COMPUTER TRANSCEIVER	6- 9	7	+ 1/8	+1.8
N	COMPUTERVISION CORP	19- 38	38 3/4	+ 1/8	+0.3
N	CONRAC CORP	21- 38	37	+ 1/8	+0.3
N	DATA ACCESS SYSTEMS	2- 9	1 1/4	0	0.0
A	DATAPRODUCTS CORP	10- 33	33	+ 1/8	+0.7
N	DATARAM CORP	2- 8	9 1/8	+ 1/8	+1.3
O	DATUM INC	2- 5	4 3/8	- 3/8	-7.8
O	DAVID JAMISON CARLYL	2- 7	3	0	0.0
N	DECISION DATA COMPUT	2- 12	10 3/8	-1 1/2	-12.6
O	DELTA DATA SYSTEMS	1- 3	2 1/2	- 1/8	-4.7
A	ELECTRONIC M & M	7- 8	5 3/8	- 3/8	-2.1
O	EVANS & SUTHERLAND	10- 41	40 1/2	- 1/2	-1.2
O	GANDALF TECHNOLOGIES	10- 22	21 3/4	+ 1/8	+0.6
A	GEN'L DATA COMM IND	9- 16	16 1/8	+ 1/4	+1.5
O	GENERAL TERMINAL CO	0- 4	7/8	+ 1/4	+40.0
A	GREAT QUITMAN'S IND	2- 8	2 3/4	0	0.0
A	HAZELTINE CORP	22- 41	41 1/8	+ 1/8	+0.3
O	ICOT CORP	3- 7	6 1/8	-	+1.0
O	INFORMATION INTL INC	10- 18	18 3/4	0	0.0
O	INTEL CORP	21- 42	40	0	0.0
O	IPL SYSTEMS INC	5- 9	9 1/4	- 3/4	-8.3
A	LUNDY ELECTRONICS	7- 12	10 7/8	- 1/2	-4.3
A	MAI DATA CORP	14- 28	27 1/4	- 3/8	-2.2
N	NETWORK SYSTEMS CORP	13- 32	32 1/8	+ 3/8	+1.1
O	OMEX	3- 6	5	0	0.0
O	PARADYNE CORP	24- 59	44 1/8	-5 3/8	-9.1
A	PERTEC CORP	7- 12	9 3/4	- 1/8	-1.7
O	PRINTRONIX CORP	12- 20	17 1/4	+ 3/4	+4.5
N	RECOGNITION EQUIP	4- 8	8 3/4	- 1/8	-1.4
O	SCAN DATA	1- 5	1	0	0.0
N	STORAGE TECHNOLOGY	10- 40	23 3/4	- 3/8	-1.4
N	SYMBOL TECHNOLOGIES	6- 14	12 1/8	- 3/8	-3.1
O	T BAR INC	7- 13	8 7/8	+ 1/8	+1.2
O	TEC INC	4- 11	7 1/2	- 3/8	-4.7
N	TEKTRONIX INC	34- 58	52	- 3/4	-1.4
N	TELEX	8- 20	18 7/8	- 3/8	-3.2
O	TESDATA SYSTEMS CP	3- 10	7 1/2	+ 1/8	+1.0
O	TIMEPLEX INC	7- 18	18	- 3/8	-2.0
O	VISUAL TECHNOLOGY	9- 18	18 3/4	0	0.0
O	WILTEK INC	1- 3	1 7/8	0	0.0
	SUPPLIES & ACCESSORIES				
N	AMERICAN BUS PRODS	11- 18	17 1/2	- 1/2	-2.7
O	BALTIMORE BUS FORMS	1- 2	1 1/4	0	0.0
A	BARRY WRIGHT	13- 21	20 3/8	+ 7/8	+4.0
O	CYBERMATICS INC	1- 1	1	0	0.0
N	DUPLEX PRODUCTS INC	12- 20	18 3/8	+ 1/4	+1.3
N	ENNIS BUS. FORMS	10- 30	28 1/2	- 1/4	-0.8
N	3M COMPANY	48- 78	78 3/8	- 7/8	-1.1
N	MOORE CORP LTD	26- 41	41	0	0.0
N	NASHUA CORP	9- 18	14 3/4	0	0.0
O	STANDARD REGISTER	32- 63	63	0	0.0
N	TAB PRODUCTS CO	15- 22	21 5/8	+ 7/8	+4.0
N	WALLACE BUS FORMS	22- 47	47 1/4	+ 5/8	+1.3

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